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EXAMINING PRESENCE AND INFLUENCE OF LINGUISTIC  
CHARACTERISTICS IN THE TWITTER DISCOURSE SURROUNDING THE WOMEN'S  
RIGHT TO DRIVE MOVEMENT IN SAUDI ARABIA

by

ABDULSAMAD SAHLY  
B.S Imam Muhammad Ibn Saud Islamic University, 2008

A thesis submitted in partial fulfillment of the requirements  
for the degree of Masters of Arts  
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in the College of Science  
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## **ABSTRACT**

Social media platforms like Facebook and Twitter have been popular tools for social and political movements in non-democratic societies in which traditional media outlets are under government control. Activists in Saudi Arabia, particularly women, have launched several campaigns through social media to demand the right to drive for women. This study used framing theory as the foundation for looking at the degree to which cognitive, emotion, and religious or moral language has been used to frame discussion of this issue on Twitter. Additionally, this study observed the relationship between these linguistic attributes in Twitter and retweeting behavior to understand the characteristics of the discourse that relate to the potential influence of the message. The results suggested that, within the sociopolitical discussion in social media, cognitive language was expressed the most often, particularly insight and causation language. The results also suggested that tweets containing cognitive language are more likely to be retweeted than those with emotion language. However, among the components of cognitive and emotion language, anger was the strongest specific predictor of retweeting behavior. The implications of the presence of linguistic attributes and their relationship to retweeting behavior and suggestions for future communication research within the context of social and political movements are discussed.

THIS THESIS PROJECT IS LOVINGLY DEDICATED TO

*my mother, Fatima,*

the greatest and most warmhearted woman;

*my father, Hadi,*

the gentle and loving soul;

*my wife, Ebtesam,*

my great love and an empathetic woman; I am so thankful to share my journey with you;

*my daughter, Joanna,*

who makes my life joyful and shining;

*my brothers and sisters,*

the source of great and sincere backing.

THANK YOU ALL FOR YOUR SUPPORT, ENCOURAGEMENT, PRAYERS AND LOVE!!

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## CHAPTER ONE: INTRODUCTION

Societies in the Arab World, including those that have deposed autocratic regimes since the dawn of the Arab Spring in Tunisia in 2011, have used social media to express their demands and dreams for a better life. Arab political movements depend on social media to exchange information outside of the traditional media channels that are controlled by governments (Bayat, 2010). In the Arab world, traditional media like satellite television channels that have covered the various uprisings were more likely to demonstrate a clear bias in support of existing authoritarian regimes (Elouardaoui, 2013). Saudi Arabia was no exception. Social media, therefore, plays a vital role in catalyzing oppositional discussion surrounding important foreign and domestic sociopolitical events (Al-Saggaf, Himma, & Kharabsheh, 2008; Alothman, 2013).

With the increase of social media use in Saudi Arabia, citizens have a strong desire to express their opinions and influence discussion. In 2013, Thomas Friedman of the *New York Times* wrote an article entitled “The Other Arab Awakening” discussing Saudi Arabian and Gulf country activists’ use of social media during Arab Spring uprisings. Friedman suggests that Saudi citizens’ demands represent evolution rather than revolution (Friedman, 2013). That is, activists were discussing the social and political reform rather than regime change.

As part of a wider movement, Saudi women have organized several prominent campaigns on Facebook and Twitter to expand their rights and expose the inequitable laws and practices that constrain women (Agarwal et al., 2015). Women in Saudi Arabia “have expanded the range of political inclusion from suffrage rights to driving, particularly in Saudi Arabia – and they have done so through online advocacy movements and awareness campaigns” (Hussain & Howard, 2012, p. 3). Those movements took advantage of the changing sociopolitical environment in

Saudi Arabia. First, political movements and change in the surrounding countries in the Middle East provided the motivation for Saudi citizens to demand additional rights (Teitelbaum, 2011). Second, the features of social media provided a unique platform for the exchange of ideas. Therefore, social media plays a critical role in supporting political movements and constructing the public discourse. It influences the public sphere by providing platforms for discussion and forums for criticism.

Political discourse in social media is distinct from traditional media in several ways. First, social media is more instantaneous and can reach wider audiences than traditional media (Salem & Mourtada, 2011). In one instructive case, three months before Mohammed Bouazizi burned himself alive in Sidi Bouzid, Tunisia, there was a similar case in the town of Monastir that had less impact. One explanation for why the Monastir case did not capture the world's attention is that it was not recorded and distributed on social media. The difference was that the gruesome images of Bouazizi were posted on Facebook, where everyone could see them. Furthermore, if Bouazizi's image had been published via traditional media outlets, the story accompanying the images might have been different because of the government restrictions and censorship of the traditional media outlets. Second, social media has an advantage over traditional media in the ability to facilitate direct communication between political actors and the general public. This enhances the effectiveness of civic mobilization (Chun, 2013). Thus, political actors can use social media to present, discuss, and deliver their discourse in a way that influences receivers. Third, social media can facilitate collective action, where individuals operate as organizing agents, providing quick coordination (Postill, 2015) such as using the Facebook group feature to organize themselves.

Over the past 10 years, several studies have focused on the political implications of social media (Ali, 2011; Boyd & Ellison, 2007; Shirky, 2011). However, the way in which communicators frame sociopolitical discourse in social media is just beginning to be thoroughly studied (Hamdy & Gomaa, 2012). In fact, there is a lack of research that investigates the presence and influence of the linguistic characteristics in messages used in sociopolitical discourse in social media, particularly in a society with limited freedom of expression.

Examinations of the language used in social media discussions can provide a better understanding of how the sociopolitical discourse is characterized. Hamdy & Gomaa (2012) suggested that people using social media express emotional language and use human interest frames while discussing a political or social movements. Framing theory is helpful for understanding the techniques that communicators use to construct social meaning and shape sociopolitical discourse in social media. Framing theory argues that individuals communicate using language that reflects internal schemata that are influenced by a variety of sources including cultural values (Entman 1993, Shoemaker & Reese, 1996). To understand how the schemata are developed and activated, researchers examine nuances in language. For example, Choi (2014) argued that messages framed using emotional language are more common than those framed using cognitive language in political discussions on Twitter (Choi, 2014).

Additionally, retweeting – forwarding messages to others – is a vital feature for information diffusion. In the language associated with framing theory, retweeting makes a message more prominent and salient. That is, when a certain tweet gets a high number of retweets, that tweet becomes more visible than other tweets, and therefore, is potentially more influential. Meraz and Papacharissi (2013) suggested that framing an issue within the Twitter

environment is centered on the competition of retweeting. Framing theory focuses on communication strategies used to create messages that give more salience to an event or issue under discussion (Carragee & Roefs, 2004; D'Angelo, 2002; Entman, 1993; Pan & Kosicki, 1993; Reese, 2007). In fact, Entman (1993) defines framing as the selection of ideas that lead to salience. Concerning the relationship between the language and the likelihood of sharing the message, Choi (2014) indicated that people on Twitter frequently share tweets with cognition-oriented language more than ones with emotion-oriented language.

The overall purpose of this study is to use quantitative content analysis to examine characteristics of the language in Saudi citizen's discourse on Twitter concerning the women's right to drive movement and assess the linguistic factors associated with presence and influence of the message. This project has three levels of inquiry. The first is to examine the extent to which cognition, emotion, and the religious/moral language are evident in Saudis' tweets about women's right to drive. The second is to examine the relationship between the linguistic characteristics (e.g., cognitive, emotional, religious or moral language) and potential to influence the social and political discourse (amount of retweeting). Finally, examining the effect of the tweet's tone (e.g., in favor of a woman's right to drive, opposed to the right to drive, neutral with regard to the right to drive) and linguistic characteristics (e.g., cognitive, emotional, and religious or moral language and their components) on its potential to influence the social and political discourse (retweeting).

This study is important because it helps us to understand how Saudi citizens interact and communicate in social media where there is space for more freedom of expression; and how they tend to construct their sociopolitical discourse. From practical prospective, this study provides a

better understanding in which language used in social media can be an effective feature in shaping the sociopolitical discourse by increasing or decreasing the chances of the message to be shared within a social media network, particularly Twitter.



## **CHAPTER TWO: LITERATURE REVIEW**

How public discourse is shaped has long been an important issue for many researchers; however, framing and its role in shaping public discourse within the relatively new context of social media requires further investigation. This chapter has two primary sections. The first describes Saudi Arabian culture which can influence the framing used in sociopolitical discourse. The section begins by laying the foundation for understanding the culture of Saudi Arabia. It highlights the social and political system, the power of the government and the official religious establishment, and the absence of a role for civilian organizations. It then discusses the characteristics of the key sociopolitical actors that are not officially authorized by the government, such as Islamic and Islamo-liberal mainstreams, which are significant contributors to the sociopolitical discourse in Saudi Arabia. The discussion then addresses the women's right to drive issue and its development through social media. It also describes the issue in a way that underscores the political environment in which the government is willing to consider reform. The final part of this section provides an overview of traditional media and social media and its role in Saudi society as being a reflective of the culture.

The second section of this chapter discusses framing theory as a theoretical model for investigating how Saudis shape public discourse on issues relating to right to drive. The framing theory section includes the argument for why the presence of linguistic attributes can be used as a measure of how individuals frame issues linguistically through activating and processing internal schemata (van Dijk, 2002) as well as how certain language use can contribute to the potential influence a message can have within the Twitter environment (Choi, 2014; Huffaker, 2010).

## Political System in Saudi Arabia

Saudi Arabia is a monarchy that purports to follow Islamic or *Sharia* law. The main sources of law in the kingdom are the Quran and the Sunna<sup>1</sup> (Wrampelmeier, 2001). According to Al-Saggaf and Simmons (2015), Saudi Arabia allows little room for expressing dissatisfaction or dissent. In Saudi Arabia, the traditional media are tightly controlled and civic engagement is severely restricted. The government has no written constitution as it is ruled by a monarchy made up of tribal leaders who possess absolute power (Albassam, 2011). Political parties and independent unions are banned (Menoret, 2011).

The concept of civic society is not fully developed in Saudi Arabia. Menoret (2011) indicated that few civic associations exist in Saudi Arabia, and those that do exist are ineffective in making an impact on society. Until recently, the tribal system has dominated. For example, the *prima* or leader of the tribe works on behalf of the others to make demands and ask for rights. Sometimes the king, princes, or other officials assign specific days or hours each week to meet and listen to people's demands and other times, people send their demands through known channels to established government agencies such as the Royal Court (*Aldiwan Almalaki*). Many groups resent the absence of these institutions but no laws exist to activate their role in society. Traditional media and social media have launched debates over establishing civic institutions. Writers, intellectuals, and some religious leaders have argued that these institutions would benefit the country.

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<sup>1</sup>The Oxford English Dictionary defines Sunnah as the “traditional portion of Muslim law based on Muhammad’s words or acts, accepted (together with the Koran) as authoritative by Muslims and followed particularly by Sunni Muslims.”

Al-Rasheed (1996) and Albassam (2011) noted that the Saudi rulers and religious scholars (*Ulama*) have an informal agreement whereby power and authority belong to the royal family. However, “religious scholars and leaders, or Ulama, are the second important power in the country providing religious legitimacy for Al Saud family rule” (Al-Anzi, 2002, p. 17). *The Council of Senior Scholars (Hay'at Kibar al-'Ulama)* is the official religious establishment in the country and enjoys the respect of society and the royal family. The Council also has the opportunity to talk directly to the rulers regarding political and social issues (Alhargan, 2012). It is the only organization the government has authorized to issue fatwas<sup>2</sup>, which represent the Islamic view on local issues after they have been studied according to the traditional Islamic method. The Council also issues statements regarding selected events occurring in the Islamic world and any issue related to Islam in the wider world. It advises the government on controversial policies but “does not apply significant pressure on the government to address violations and abuses” (Alhargan, 2012, p. 127). For example, in 1991, the Saudi government needed the Council’s support to allow foreign coalition troops to help the Saudi government liberate Kuwait from Saddam Hussein’s military control (Wrampelmeier, 2001).

### **Social and Political Actors in Saudi Arabia**

Certain events have affected the sociopolitical climate in Saudi Arabia and created divisions within Saudi society, giving rise to different sociopolitical powers. Events such as an extremist Sunni group occupying the Holy Mosque in Mecca in 1979, the Gulf War in 1991, extremist Shiite Saudis bombing the American compound in Khobar Towers in 1996, the 9/11

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<sup>2</sup> The Oxford English Dictionary defines a fatwa as a “ruling on a point of Islamic law given by a recognized authority.” “Fatwa” is singular and “fatwas” is plural (also see: The Islamic Supreme Council of America for more details) <http://www.islamicsupremecouncil.org/understanding-islam/legal-rulings/44-what-is-a-fatwa.html>

attacks in the United States, and Al-Qaeda and ISIL bombings and attacks in Saudi Arabia from 2000 to the present have contributed to two emerging sociopolitical streams of thought: the Islamic and Islamo-liberal mainstreams (See Figure 1).

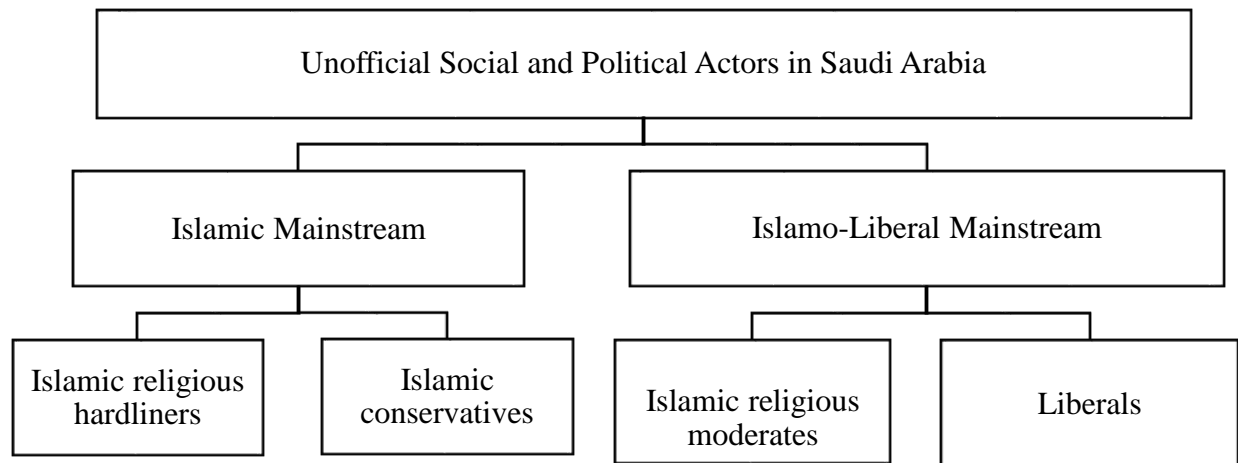


Figure 1: Distribution of sociopolitical power in Saudi Arabia.

**Islamic mainstream.** The religious leaders who represent the Islamic mainstream do not belong to an official religious establishment such as the *Council of Senior Scholars* and do not hold government positions (Alhargan, 2012). These religious leaders have a strong presence in Saudi society and have established a strong presence in social media (Al-Saggaf, Himma, & Kharabsheh, 2008; Al-Saggaf & Simmons, 2015).

Currently, two sub-groups of religious leaders represent the Islamic mainstream in social media: Islamic conservatives and religious hardliners. Islamic conservatives and hardliners disagree with any liberal ideology in Saudi society, claiming that it will result in the loss of Islamic identity in the society and country (Lacroix, 2004). Religious hardliners are “those who adopt religious views that are not entirely based on original Islamic texts and principles [that]

can be obstacles to the advancement of women's rights," but they are fewer and less influential than the Islamic conservatives (Alhargan, 2012, p. 131). Islamic conservatives have an influence and presence in the society and are active in social media and on some TV channels. They are also active in the education field. Many of whom hold advanced degrees in Islamic studies such as Ph.D in Islamic Sharia law. They diagnose and provide views for the social and political phenomena through a traditional *Salafi* approach. Generally, this mainstream opposes the right of women to drive in Saudi Arabia.

**Islamo-liberal mainstream.** The Islamo-liberal phenomenon in Saudi society encompasses various sociopolitical elites such as professors, writers, journalists, business professionals, and bureaucrats. Ideologically, the Islamo-liberal mainstream elites arose from traditional Western liberalism and moderate religious leaders who initially had very conservative views but became more liberal. Their sociopolitical appeals focus on promoting substantial societal reforms, such as establishing a constitutional monarchy, egalitarian gender relations, elected institutions, the recognition of rights, and moderating society and Islamic teachings, all under an Islamic framework (Alhargan, 2012; Dekmejian, 2003; Lacroix, 2004).

Lacroix (2004) noted two main groups in the Islamo-liberal mainstream. The first consists of social liberals who focus on social and cultural change. Social liberals usually challenge religious leaders who represent Islamic conservatives and hardliners (the Islamic mainstream). The second group of Islamo-liberals is composed of political liberals whose primary focus is the political system. They argue that although the social and cultural change sought by social liberals is important, this change will not be effective if political change does not occur.

These two mainstreams play significant roles in shaping sociopolitical discourse in Saudi Society (Alhargan, 2012; Lacroix, 2004). Alothman (2013) used the Tweepar website to evaluate the activities on Twitter in Saudi Arabia. He found that four clerics and three journalists are the most followed among the top-ten users in Saudi Arabia. Journalists, writers, and intellectuals of the Islamo-liberal mainstream (Alhargan, 2012; Dekmejian, 2003) usually represent the liberal view. On the other hand, clerics and religious leaders of the Islamic mainstream represent the conservative view. In fact, before the emergence of social networks, online forum communities in Saudi Arabia were well known among political activists from different ideological backgrounds. Al-Saggaf, Himma, and Kharabsheh (2008) found that Islamic fundamentalists and liberals were the major players in the political discussions in online forum communities.

When a sociopolitical issue arises on social media, a backlash usually occurs between mainstream actors. Also, some sub-groups, such as youth activists and female activists, tend to pick a side and defend their views. According to Alahmed (2014), aggressive comments have become common on Twitter when the topic involves sociopolitical change. Because advancing certain sociopolitical demands is highly restricted in real life and traditional media, social media has become the place where Saudi citizens can more freely discuss sociopolitical issues. Saudi Arabia's ban on women driving is one controversial issue that can be seen as an example of Saudi society's discussions on social media.

### **Women Driving in Saudi Arabia**

Banning women from driving is one of the most controversial issues in Saudi society. This issue has arisen repeatedly since the 1991 when 47 women protested in the streets of Riyadh (Almahmoud, 2015). In 2007, Wajeha al-Huwaider and Fawzia al-Uyyouni submitted a petition

with 1,100 signatures to King Abdullah demanding that the government lift the driving ban (Coomaraswamy, 2008). A year later, on International Women's Day, Wajeha al-Huwaider posted a video on YouTube of herself driving a car. Since then, videos of women driving have spread rapidly on social media, often showing the support of a male from their family (e.g., father, husband or brother).

In 2011, the "Women2Drive" social media campaign gained extensive attention from local and international media. This campaign, led by Manal al-Sharif, featured a group of women who posted videos showing them driving cars across the country in defiance of the ban on driving as well as in protest of Al-Sharif and others' arrests (Agarwal et al., 2015). Al-Sharif was charged for "disturbing public order and inciting public opinion by twice driving in a bid to press her cause" (Macfarquhar, 2011). Notably, the king ordered the release al-Sharif and the others who had arrested during the campaign (Alahmed, 2014). In Saudi Arabia, there is no specific law preventing women from driving cars. However, women cannot be issued driver's licenses. When the campaign and movement was launched on social media, in 2013, the Interior Ministry of Saudi Arabia issued a statement preventing any rally on the street, saying that protest rallies would disturb the safety of and divide society. However, the statement did not specify any law that prevented women from driving (Al Arabiya, 2013).

In 2013, a new campaign was launched via Twitter, "Oct26Driving." A month before the campaign started, on September 25<sup>th</sup>, female activists created an online petition demanding women's right to drive, gaining more than 16,000 signatures. The hashtag creation, the discussion of this issue, and posts of driving videos started even before October 26<sup>th</sup>. Twitter activity concerning this topic first appeared in late September, and reached its highest rate during

October and November of 2013 (Agarwal et al., 2015). There were two primary hashtags: (1) *قيادة 26 أكتوبر* (#Oct26Driving) and (2) *لا قيادة السيارة* (#No\_to\_Driving). According to Almahmoud (2015), the first hashtag was mainly used by supporters of women's right to drive. The second hashtag was used by the opposition. This campaign successfully spread awareness of women's rights, particularly their right to drive (Agarwal et al., 2015; Alahmed, 2014). Moreover, this campaign generated huge interest across the world

Despite Saudi Arabia being the only country in the world where women are forbidden to drive, in 2011 Saudi officials indicated that the ban will continue until society decides differently. In an interview for ABC news, Barbara Walters (n.d.) asked King Abdullah bin Abdulaziz about the issue of women driving; he responded, "I believe strongly in the rights of women ... my mother is a woman, my sister is a woman, my daughter is a woman, my wife is a woman. I believe the day will come when women drive."

This suggests that the government is willing to move forward with some reforms regarding the rights of women. Analysts have argued that the government does not want this change to occur because it will enrage Islamic fundamentalists and offend tribal values. In fact, women's participation in public life in Saudi Arabia not only is contrary to some religious leaders' beliefs but also goes against tribal traditions that limit women's participation in public affairs. Therefore, permitting women to drive might create schisms among the government, conservatives, and tribes at a time when the consequences of the Arab Spring's political conflicts and terrorism threaten the region's security.

**Governmental reform and women.** In the past 10 years, sociopolitical reform has been clearly evident in the government's actions and development plans. In regard to women's rights



in Saudi Arabia, King Abdullah wanted to implement reforms in the country, particularly with respect to women's rights. Albassam (2011) noted that King Abdullah (1995-2010) promised to initiate political reforms such as increasing public participation in the political process and fighting corruption as well as expanding women's rights. The following extends the discussion of those reforms.

Kéchichian (2012) studied the progress of reform efforts in Saudi Arabia. He visited Saudi Arabia several times between 2009 and 2011 and conducted 48 interviews with various officials, religious leaders, and those with liberal views; he also made his own observations. Kéchichian concluded that significant reforms had taken place in Saudi Arabia in those 10 years. Important reform activities included changes in the judiciary, national dialogues on social issues and women's participation in public life, increased political participation, and municipal elections. Saudi rulers understood that Saudi citizens, as well as Muslim and Arab societies, were looking for real change and improvement in their lives. This reality drove the creation of more space for expression, allowed a more open-minded attitude toward dissenting voices, and increased stability in the country. Conservative and liberal religious leaders, journalists, and intellectuals presented political petitions to the royal family through secret meetings, shielded from the public and the media. These political petitions called for providing natural rights of citizenship, such as:

elections for legislatures with authority over the budget, an end to religious discrimination, amnesty for nonviolent political prisoners, and the promotion of "national dialogues" on critical issues. In fact, the petition invited the ruling family to begin moving toward a constitutional monarchy and, based on what King Abdallah embarked upon in

sponsoring the country's comprehensive “National Dialogues,” it may be safe to conclude that someone was paying attention. (Kéchichian, 2012, p. 175)

According to the Ministry of Economics and Planning website (2012), one priority of the 2005-2010 development plan was “enhancing competitive abilities and the plan paid special attention to increasing women’s participation, strengthening the roles of family in community by developing the abilities of the Saudi women and removing obstacles that deter women from participation in economic and developmental activities.” Therefore, women’s rights movements in Saudi Arabia have seen some successes. For example, women are now able to vote and run for office in municipal elections (Agrawal, 2015). In fact, 20 women were elected in the first municipal elections in which women participated as voters and candidates. Furthermore, 30 seats were offered to Saudi women in an unelected parliament (Shura Council) for the first time in history (Hamdan, 2013). In addition, the deputy education minister is a woman.

However, the freedom of expression of traditional media in Saudi Arabia is limited. Content published via traditional media is also censored by the government (Al-Saggaf, 2012; Al-Saggaf, Himma, & Kharabsheh, 2008; Al-Saggaf & Simmons, 2015). Consequently, the traditional media system in Saudi Arabia does not have a lead role in essential issues such as women’s right to drive. However, this is not the case with social media, where there is greater freedom for expression and discussion. The traditional media exploits social media literacy to stimulate political participation by transmitting their opinions, thereby eliciting debate among colleagues, friends, and family members (Al-Saggaf, 2012; Al-Saggaf & Simmons, 2015). This can be an indication that social media plays an important role in shaping public discourse (Perlov

& Guzansky, 2014). The following is an overview of the traditional media and social media dynamics in Saudi Arabia.

### **Mediated Communication in Saudi Arabia**

**Traditional media.** There is a notable lack of academic research addressing governmental regulation of journalism and journalistic freedom in the Arab countries. Researchers in some Arab countries have avoided investigating sensitive issues due to the concerns that they might lose their positions or jobs (Duffy, 2014). According to a report from Freedom House, the media environment in Saudi Arabia is not free. For example, “Article 39 of the 1992 Basic Law, which covers mass media, does not guarantee freedom of the press, and the authorities are given broad powers to prevent any act that may lead to disunity or sedition” (Freedom house.org, 2015).” In fact, Saudi Arabia recently tightened media control by passing antiterrorism legislation that broadened the power to arrest regime critics.

Saudi press laws are broad and vague, and there is no detailed written penal code. For example, freedom of expression is guaranteed within the frame of Sharia laws. The laws state that publications and journalists should criticize and observe based on reality and clear evidence. With regard to national security, Article 9 of the Saudi press laws states that press freedom should not breach public security, national, or foreign interest. Remarkably, there is no further detail regarding freedom of the press. This ambiguity may lead to limiting the role of the press and its potential in society (Duffy, 2014; Royal decree, 2000). Thus, Al-Sarami, (2012) found that the Saudi Journalists Association does not play an active role in Saudi Arabia:

The overly broad public order provisions in the GCC [Gulf Cooperation Council] media laws could easily lead to self-censorship by journalists. For instance, a reporter covering

corruption at a government agency could be accused of damaging public order by shedding light on inequities. A Saudi journalist describing destitute conditions in a village could be accused of “inciting protests.” A journalist would be understandably reluctant to risk the potential consequences of such charges and therefore might opt for incomplete reporting. (Duffy, 2014, p. 17)

When considering the emergence of the media in Saudi Arabia, it is important to point out that the Islamic fundamentalist movement in the country stridently fought new technologies, accusing the government of Westernizing the society (Gold, 2003). For example, In the 1960s, some religious leaders condemned the idea of women broadcasting on the radio when the first female voice was heard on a radio station. However, King Faisal (1964-1975) dismissed their concern (Holden, 1966).

At that time, the Saudi government focused on regulations that promoted Islamic messages and values through television channels. Any news that might offend the Islamic religion, ethics or Arab values, was atheistic, or was not ideologically correct, was banned (Al-Shamikh, 1972), any scenes of “alcohol, gambling, cheating, idol worship, usury, adultery and [immodest] exposure” were prohibited (Luqman, Quraeshi, & Yavas, 1989, p. 63). Still, King Faisal stated that educating people, providing a modern model for society, and connecting the Saudi tribes together were considered important reasons for launching these channels (Boyd, 1972).

In recent years, there have been notable changes in the traditional media. For example, there is an increased presence of female Saudi journalists in the traditional media as anchors, reporters, editors, and columnists (Mellor, 2010). Almistadi (2014) observed that few changes

have been made in newspaper content and coverage of issues, concluding that the most important topics discussed in the top three national Saudi newspapers were foreign affairs, civil defense, culture and media, labor, and justice. However, news of the royal family is no longer a regular front-page feature in most Saudi newspapers (Beating the Censor, 2014).

Since the 1980s, influential Saudi businessmen have invested in the media sector (Mellor, 2010). Saudi business professionals own the most popular satellite television channels in the Arab world, most of which broadcast from outside the country but target the Arab and Saudi audience in particular (Al-Anzi, 2002). For example, the MBC Group (Middle East Broadcasting Center) was launched from London in 1991 and moved to its headquarters in Dubai in 2002. The MBC Group, a free-to-air and pan-Arab satellite company, offers more than 24 channels. For instance, the Al Arabiya and Al Hadath 24-hour news channels cover the news from different countries around the world. MBC1 is a popular channel in the Arab world that broadcasts a variety of television programs containing entertainment, art, and music and talk shows, as well as some versions of international shows such as *The Voice*, *Arabs Got Talent*, and *Arab Idol*. Furthermore, the channel focuses on social problems that arise in Saudi Arabian society, such as women's rights, unemployment, drugs, divorce, and terrorism.

Among communication platforms that target Saudi society, social media, in recent years, has become one of the important, particularly for social and political discussion among Saudis.

**The Internet and Social Media.** Shirazi (2013) noted that technologies for digital communication and related applications offer people in repressive regimes opportunities to take part in generating meaningful communication discourse, which helps empower civil and social opposition. Social media use has become very popular among Saudis. It is now common to see

political elites from different backgrounds and interests, as well as religious leaders, members of the intelligentsia, thinking classes, actors, athletes, singers, and governors, on Twitter. Even King Salman Ibn Abdulaziz has an authorized account on Twitter.

Askool (2012) reported that Saudi Arabia has a large number of users and consumers of digital content, with more than 190 million YouTube views annually and more than 2.9 million Twitter and Facebook users. In fact, Saudi Arabia is the third largest social media market the Middle East (Samin, 2012). Saudi Arabia has highest number of active Twitter users in the Arab world (Salem et, 2014).

Faqihi (2015) noticed that Saudis have a desire to express their political opinion on Twitter. The growth of Twitter in Saudi Arabia has made it one of the most popular social media tools among Saudis; it offers a platform on which they can express their opinion freely (Al-Jabri, Sohail, & Ndubisi, 2015). In his study about Saudis' motivations and expectations of social media use, Alothman (2013) pointed out that Twitter is the first choice among social media technologies for political and social discussions. However, specific calls for action, such as protesting against the government, are not common among Twitter users in Saudi Arabia (Alothman, 2013). This heavy use of social media, particularly Twitter, became more influential than the traditional media in terms of shaping public discourse as well as constructing meaningful and effective messages during the sociopolitical movements in Saudi Arabia.

### **Twitter Features**

Twitter is a micro-blogging tool that was founded in early 2006. Twitter provides the feature that allow people to post and share a textual message—“tweets”—with other users

containing 140-character limit. The features associated with Twitter that are used in this research include *tweets* and *retweets*, defined as follows:

**Tweets.** The central feature of Twitter is the ‘tweet’. The tweet is a message containing no more than 140 characters that a user creates to post on Twitter. Users can log in and see their chronologically updated posts on a home page. When a user creates content, the tweet is visible to all other users who follow the creator. Likewise, a user can see the most recent tweets posted by the people he or she is following (Christensson, 2009).


**Retweets.** The ‘retweet’ is a vital tool for the dissemination of information on Twitter. A user can share interesting information posted by another user by simply retweeting the information. A tweet can be shared in two ways. In the first method, users retweet content with three elements: (1) include the “RT” sign, (2) the address of the original author with the @ symbol, and (3) the address of the content that the user wants to share. For example, “RT @user name: Saudi women post videos while driving in Riyadh streets #Women\_Driving.” The second method of retweeting involves a user simply clicking on the retweet sign  (Suh et al., 2010). Table 1 includes definitions and examples of the Twitter features used in this study.

Table 1

*Description and Examples of Tweet and Retweet Features in Twitter.*

Type of feature	Definition	Example
Tweet	<b>Message sent by individual, media outlet original account, or government account</b>	<p><b><u>@h_amal أمل</u></b>  <b>Women speak out!!</b>  <b>#Women_Driving</b></p> <p><b><u>@Rose مجلة روز الاسبوعية</u></b>  <b>Saudi women behind the wheels #Women_Driving</b></p>
Retweet	<b>A tweet that is forwarding someone else's tweet</b>	<p><b><u>@khalid_a خالد</u></b>  <b>RT@ h_amal أمل</b>  <b>Women speak out!!</b>  <b>#Women_Driving</b></p> <p><b>Or</b>  <b><u>@A_Salim Salim Ali</u></b>  <b>Retweeted</b>  <b><u>@ h_amal أمل</u></b>  <b>Women speak out!!</b>  <b>#Women_Driving</b></p>

### **Sociopolitical Discourse on Twitter**

According to van Dijk (2002), the structure and process of communication through a certain medium, such as traditional media or social media, are constitute the form of sociopolitical discourse. Sociopolitical discourse is “language use relative to social, political and cultural formations – it is language reflecting social order but also language shaping social order, and shaping individuals’ interaction with society” (Jaworski & Coupland, 1999, p. 3). Social and political microblogging on Twitter has become an increasingly important source of news and information sharing (Baumer et al., 2010). Twitter increasingly has been used as a medium to discuss and share political events (Xifra, Grau, 2010) and social topics (Yardi, Boyd, 2010) within the online community, which provides a legitimate medium for sociopolitical discourse



(Tumasjan et al., 2010). For example, people can report, present, discuss, and deliver their events in a way that constructs the public discourse. Furthermore, political actors, citizens, and/or government officials can engage in dialogue about any sociopolitical issue and participate in constructing the public discourse. This involvement enhances the effectiveness of civic mobilization (Chun, 2013) and facilitates collective action for activists and sociopolitical campaigns in which individuals operate as organizing agents, providing quick coordination (Postill, 2015). Therefore, the current study seeks to understand how features of the language used in Twitter help construct sociopolitical discourse.

## **Summary**

This study examines sociopolitical discourse on Twitter within the cultural context of Saudi Arabia. The previous section contained an overview of the political and cultural climate during the women's right to drive movement. Saudi Arabia is a country that suffers from the absence of civic society (i.e., without political institutions such as independent unions and political parties). The royal family and religious scholars are the top official powers in the country and they generally have the respect and support of society. Other sociopolitical actors are the Islamic and Islamo-liberal mainstreams. Despite the fact that they are not officially authorized by the government, they have a major part in shaping the sociopolitical discourse in Saudi Arabia. The Islamic mainstream represents the conservative view of the issues, those who push to keep the Islamic identity of the country under the traditional *Salafi* approach. In general, this mainstream opposes the women's right to drive. In contrast, the Islamo-liberal mainstream promotes change regarding certain social and political issues, including granting women the right to drive. Members of those groups are active in Social media. Social media facilitates the

discussion and help spread awareness of women's rights in general and the right to drive, in particular. They launched several campaigns through social media asking to grant women the right to drive. This campaign took advantage of the political environment that ensued when freedom and political revolutions began in the Middle East ("Arab Spring") as well as the government's willingness to conducting some kind of reform for women's rights. In Saudi Arabia, traditional media is not independent of the government and the press law is broad and vague. Traditional media does not reflect society's needs or voice. As can be expected, Saudis use social media to raise their demands and express their opinions more freely

The next section provides a framework for understanding and analyzing the previous cultural phenomena. Framing theory provides the foundation for understanding sociopolitical discourse. Specifically, it supplies an explanation of why it is important to consider how culture can shape discourse, the linguistic characteristics that reflect thoughts and feelings associated with an issue, and the potential impact of messages about the women's right to drive issue on members of a social network.

### **Framing Theory**

Framing theory is useful for understanding how Saudis frame and shape public discourse on Twitter, particularly regarding the women's right to drive movement. Although a substantial amount of literature exists regarding sociopolitical communications using social media, some aspects, such as the role of communicators in framing messages and shaping public discourse, need more investigation. Framing involves presenting and defining an issue to follow a particular narrative. Gamson and Modigliani (1989) stated that communicators use framing to make sense of relevant events and outline important issues. Entman (1993) defined framing as selection and

salience. Framing shapes societal-level processes such as decision-making, political socialization, and collective action (D'Angelo, 2002; de Vreese, 2005). The current study draws from Entman's (1993) conceptualization of the frame locations:

The cold war example also suggests that frames have at least four locations in the communication process: the communicator, the text, the receiver, and the culture.

*Communicators* make conscious or unconscious framing judgments in deciding what to say, guided by frames (often called schemata) that organize their belief systems. The *text* contains frames, which are manifested by the presence or absence of certain keywords, stock phrases, stereotyped images, sources of information, and sentences that provide thematically reinforcing clusters of facts or judgments. The frames that guide the *receiver's* thinking and conclusion may or may not reflect the frames in the text and the framing intention of the communicator. The *culture* is the stock of commonly invoked frames; in fact, culture might be defined as the empirically demonstrable set of common frames exhibited in the discourse and thinking of most people in a social grouping. (p.52)

The cluster of the frame can be driven from more than one perspective such as the communicator's schemata within embedded cultural context (Van Gorp, 2007). Therefore, the present study is informed by framing theory on two levels. First, is the macro level, which views the public discourse within an embedded cultural meaning as "the meaning systems that are culturally available for talking, writing, and thinking about political objects: the myths and metaphors, the language and idea elements, the frames, ideologies, values, and condensing symbols" (Gamson, 1988b, p. 220). Cultural values exist implicitly everywhere and, therefore, are difficult to identify (Van Gorp, 2007). Gamson, (1988a) argues that "the difference between

the concepts is in the level of analysis: one, at the cultural level, refers to public discourse; the other, at the individual level, refers to cognition” (p.171). Therefore, given to the complexity of measuring discourse from a cultural perspective, this study considers the cultural implications as a backdrop for a narrowly focused examination on the second level: cognition.

The second level of the theoretical framework is the micro level, where messages are activated and processed according to underlying internal schemata. The cognition process involves activating and processing the discourse starting from an internal mental model of an event (van Dijk, 2002; van Dijk and Kintsch, 1983). Psychologists like Minsky (1975) argue that cognitive mental frameworks can represent the central theme of the frame packages. In fact, people’s interpretations of messages are not only guided by the external cultural processes, but also by their internal schemata (Shoemaker & Reese, 1996).

The current study is in line with van Dijk who says “in order to understand and explain political discourse, we also need to examine the underlying political cognition of participants in political communication” (2002, p. 224). The concept of devices, an approach of the interpretive frames, in framing theory can include linguistic factors such as words that represent metaphors, exemplars, catch-phrases, and depictions (Gamson, 1988a; Van Gorp, 2007). Huffaker (2010) and Choi (2014) argue that the linguistic ability and cognitive ability are associated with the spread of online messages. The presence of the language (e.g., emotional, cognitive or religious or moral language) can characterize the sociopolitical discourse. Therefore, this study focuses on presence of linguistic attributes, particularly cognitive, emotional, and religious or moral language and their connection to online sociopolitical discourse.

**Cognitive language.** This study looks at cognitive language in the sociopolitical discourse concerning the issue of women's right to drive. Cognition can be defined as prior knowledge that communicators use to process messages. That is, when communicators talk about certain political issue, they use their mental schemata to construct their messages (D' Angelo, 2002). The cognitive language uses the words that represent the components of insight, causation, discrepancies, certainty, and inhibition. (More details about these words and components appear in the method section). The characteristic of the cognitive language can refer to some broad frames of the sociopolitical discourse applied by the political actors

Previous studies have not clearly addressed the concept of cognitive language and its role in the social or political discourse in online discussion (Choi, 2014). As such, the expression of the cognitive language and its role in shaping the sociopolitical discourse has not been thoroughly studied. For example, Choi (2014) observed that there is a relationship between cognition and retweeting. Other studies compared cognitive language to emotional language (Choi, 2014; Marcus et al., 2011) without looking at specific components of each type of language. Additionally, previous studies have not particularly looked at cognition expression in the context of sociopolitical movements. Based on the above, the first research question is as follows:

RQ1: Which linguistic components of cognition (i.e., causation, insight, discrepancies, tentative, certainty, inhibition) are expressed most frequently in tweets about the women's right to drive movement?

**Emotional language.** The definition of emotion used in this study refers to the affective language that speakers use in everyday discussion. The "affective language" can be defined as a "generic term for linguistically expressed feelings, attitudes and relational dispositions of all

types” (Kryk-Kastovsky, 1997, p. 155). Emotion in this study includes positive and negative emotions. Positive emotions usually encompass joy and happiness and negative emotion can encompass components such as anxiety, anger, and sadness (more details about those components are provided in the method section).

Several studies have shown that emotion is commonly used on social media. For example, an ethnographic study revealed that Saudi women used Facebook to express their feelings and emotion as well as political views (Al-Saggaf, 2011). Within the context of social media movements, during the Egyptian protests in January 2011, Hamdy and Gomaa (2012) collected data from Twitter, Facebook, semi-official newspapers, and independent newspapers to examine the frames applied in this uprising event. They examined four dimensions: “the general way in which the protests were framed, how the protests were defined, what causes were given for the protests, and what solutions were proposed for ending the crisis” (p. 207). They found that the human interest frame is the most applied frame among Egyptians in social media. According to Semetko and Valkenburg (2000), the human interest frame refers to the content in which the individual personalizes, emotionalizes, or dramatizes an issue to capture the interest of others. That is, people tend to use language that emotionalizes an event to capture the people’s interest and attention. This leads to the second research question:

RQ2: Which linguistic components of emotion (e.g., positive emotion and negative components) are expressed most frequently in tweets related to the women’s right to drive movement?

Hamdy and Gomaa (2012) found the majority of the social media posts regarding the Egyptian’s revelations contain language that represents the suffering of the ordinary Egyptians from the repressive regime “such as *martyrdom* and *rage*” (p. 201). Al-Saggaf (2012) investigated how

Saudis used social media and online sites for political participation during the floods that hit Jeddah city in 2009. He conducted a thematic analysis of 40 comments posted on YouTube, Facebook, and the Al Arabia site. Al-Saggaf found that anger language was commonly expressed at those responsible for floods. Along with this, Choi (2014) analyzed emotional language in political online discussions and found that anger is expressed more than anxiety. This leads to the following hypothesis:

H1: Among the negative emotional components (i.e., anxiety, anger, and sadness), anger will be expressed most frequently in tweets regarding the women's right to drive movement.

Marcus and MacKuen (1993) found that cognitive and emotional messages support an individual's ability to participate in political deliberation. Comparing cognitive and emotional messages, Marcus et al. (2011) found that in political discussion, emotion-oriented language is more likely to be used than messages featuring cognitive language. On Twitter, Choi (2014) also observed that emotional language is more likely than the cognitive language to be used in political discussions. This leads to the second hypothesis.

H2: Emotional language will be expressed more frequently than cognitive language in the tweets regarding women's right to drive movement.

Based on the previous review of the cultural environment in Saudi Arabia, religion is clearly an important part of the discussion on any issue. Religious or moral tenets are commonly used in Saudi Arabian discourse (Alahmed, 2014), particularly surrounding controversial issues, like women's' rights to drive. As such, this matter has more than simply an ideological side, one that would involve the Islamic and Islamo-liberal mainstream. Those mainstreams, according to Al-Saggaf, Himma, and Kharabsheh (2008), are active in cyberspace. They also feature prominently in the shaping of sociopolitical discourse in Saudi Society (Alhargan, 2012; Lacroix,

2004). Moreover, framing theory also proposes that the cultural aspects, such as religion, are important factors in framing political discourse (Gamson, 1988b, Van Gorp, 2007). Therefore, it is worth examining the religious or moral language used regarding the issue.

**Religious or moral language.** Religious and morality language addresses the content reflecting a religious credo or presents a moral prescription (Semetko & Valkenburg, 2000). There is a lack of research that examines religious content in sociopolitical movements in Saudi Arabia, particularly in women's movements. Almahmoud (2015) used framing theory to conduct qualitative research of Twitter to investigate the frames applied by Saudi male clerics and female activists regarding to the women's right to drive movement.

Almahmoud found that male clerics mostly framed the issue of women's right to drive as a foreign conspiracy against the political system and social morality in Saudi Arabia. She observed that female activists used the English language to frame the issue in a way that grabbed the attention of both local and international communities. She also found that both male clerics and female activists used "prior texts" such as governmental regulations to support their position of a woman's right to drive. Finally, the result revealed that Saudis sometimes framed the women driving issue in a religious or moral context by using language reflecting harm prevention, society corruption, sedition, conspiracy, and evil. This leads to the second research question:

RQ3: How frequently is religious or moral language used in tweets regarding the women's right to drive movement?

Almahmoud's study did not clearly define the study variables, such as male clerics or female activists. She mentioned that society is divided regarding support for women's right to drive, but due to the qualitative nature of her research, it was not clear how those on each side of the issue



(i.e., the supporters and the opponents) used language in their discourse. Further, based on the researcher's knowledge, there has not been an official poll or research study to indicate the numbers of supporters and opponents of this issue, nor have any institutes indicated such numbers. Therefore, it would be helpful for our understanding to also examine the tweets with regard to their position on the issue (tone); such as being in favor of, neutral, or opposed to the issue of women's right to drive.

RQ4: What proportion of the tweets concerning women's right to drive issue are in favor of, neutral toward, or in opposition to the issue?

**Influence.** In social media, individuals can choose to share messages they receive. For example, those who use Twitter can retweet particular messages to send them to members of their social network. This has led some researchers to consider the frequency of retweet as an indicator of influence. According to Habermas (1989), influence comes from political conversations garnering the support of others. In this regard, "[retweets] take place in a highly competitive environment in which countless messages compete for attention" (Choi, 2014, p. 213). Huffaker (2010) investigated assertion words in online discussion in Google groups. Huffaker used the frequency of certain words such as "always," "clearly," and "sure" as assertion factors. The results revealed that the assertiveness expressed in messages, which is a cognitive component, aroused replies, created discussion, and spread content.

This study investigates the relationship between linguistic content and the retweet based on the Choi (2014) model of political discourse. Choi argues that a "retweet" within a Twitter discussion environment is an indicator of the content influence. That is, "the frequency of one's remarks being passed along by others—the more a message is passed along by others, the more influential it can become" (p. 217). Retweeting a certain user's message indicates that his/her

opinion on the issue under discussion is among the most important, compared to many other tweets (Larsson & Moe, 2011).

Meraz and Papacharissi (2013) suggest that the competition of retweeting can promote the prominence and the influence of the message. “The subtle disruptions to the power hierarchy introduced by tweets and the process of retweeting them support possible contagion patterns that permit frames to float to prominence within a Twitter stream” (p. 155). Therefore, the competition among messages in the Twitter environment can explain the salience and attention of the message. Entman defined salience in framing as “making a piece of information more noticeable, meaningful, or memorable to an audience” (p. 53). However, Meraz and Papacharissi’s (2013) study did not include a number of the potential factors that might contribute to such a potential influence, including the linguistic characteristics. Therefore, in this study, language was used as an aspect that referred to a potential influence (salience) as well as an indication of the perpetuation of a frame.

The current study focuses on the linguistic attributions and potential influence (amount of retweeting). Previous research has concluded that message content is related to retweeting more than other potential influence features. For example, Cha et al. (2010) used a large amount of data, 1,755,925,520 tweets, to measure three influential Twitter features: the number of people who follow a user, the number of retweets, and the number of mentions. They found that value of the content plays a significant role in retweeting. They also concluded that number of followers does not relate to retweeting. Suh et al. (2010) found that there is a relationship between the frequency of a retweet and the value of the content. However, that research did not offer more

details about the content type in terms of the linguistic characteristics, but Choi (2014) concluded that cognitive language is related to retweeting behavior.

Choi (2014) examined the use of cognitive language such as assertion, speculation, limitation, or expectation in the context of a political discussion and found that assertive language is more often retweeted. However, Choi's study examined the political discussion on Twitter within Korean culture. Furthermore, the study was not applied within sociopolitical movement discussion. Moreover, the study did not look at the cognitive components (i.e., insight, causation discrepancies, tentative, certainty, inhibition) and retweeting behavior. Therefore, this leads to the following question:

RQ5: Which of the cognitive components (i.e., insight, causation discrepancies, tentative, certainty, inhibition) have the most influence on the amount of retweeting?

Within political contexts, Druckman and McDermott (2008) examined the relationship between emotions and sociopolitical decisions, finding that emotions can significantly influence people's tendency to select a riskier choice. Druckman and McDermott found that over a three-month period, *New York Times* articles that had a positive tone were more likely to be shared in social networks than articles with a negative tone. Furthermore, they found a partial relationship between sharing behavior and physiological arousal. That is, sharing behavior increases with high-arousal positive emotions such as awe or negative emotions such as anxiety and anger, and decreases when the content contains low-arousal emotions such as sadness. Stieglitz and Dang-Xuan (2012) concluded that tweets containing affective language (emotional words) are associated with more retweeting than tweets that do not contain affective language. More specifically, they found that tweets expressing positive and negative emotions are more likely to

be retweeted. However, Stieglitz and Dang-Xuan did not compare the cognitive language in tweets to the emotional language and feature of retweetability. More relevant to the current study, Choi (2014) studied the relationship between content influence and retweets within a political context. The result showed that cognitive language was more likely to be retweeted than emotional language. Therefore, the following questions are proposed:

RQ6: Which of the emotional components (i.e., positive and negative emotions) have the most influence on the amount of retweeting?

RQ7: Which of the negative emotional components (i.e., anxiety, anger, and sadness) have the most influence on the amount of retweeting?

Considering at the comparison between the cognitive and emotional language, Choi concluded that people tend to spread messages on Twitter that employ cognitive language more than those that employ emotional language. Therefore, this leads to the third hypothesis:

H3: The use of the cognitive language in the tweets is more strongly related to the amount of retweeting than emotional language.

Previous studies have not clearly looked at the relationship between religious or moral language and its potential influence (amount of retweeting). Also, previous studies have not clearly examined whether there are clear differences across cognitive, emotional, religious, and moral linguistic components and potential influence (amount of retweeting).

RQ8: Is religious or moral language a predictive factor for retweeting?

RQ9: Which of the linguistic components (i.e., causation, insight, discrepancies, tentative, certainty, inhibition, positive emotion, anxiety, anger, sadness, religious or moral language) have the most influence on the amount of retweeting?

Through her qualitative research, Almahmoud (2015) observed that there are differences in the language used among those who have different views about the issue of women's right to

drive (e.g., male clerics and female activists). However, her research did not look at whether the language can play a key role in retweeting behavior based on the tone of the issue. Therefore, the current study examines the potential differences in the relationship between language attributes and retweeting behavior (i.e., influence) based on the positive, neutral, or negative tones of the tweets.

RQ10: Are there differences among the linguistic components (e.g., causation, positive emotion, and anger) that influence the amount of retweeting based on the tone of the tweet (i.e., negative, neutral, or positive attitudes toward the issue of women's right to drive).

## **Summary**

Framing theory is concerned with explaining the phenomena of how communicators construct their messages and make a salient argument for the issue under discussion (Entman, 1993). The cognitive paradigm of framing theory argues that people activate and process an information based on internal schemata which reflect cultural values and knowledge (Gamson, 1988a, Gamson, 1988b, van Dijk, 2002, Van Gorp, 2007). Some scholars have stated that the linguistic characteristics can be a measure to detect a thematic frame of the political or social messages. That is, the internal schemata and cultural factors can be detected through the language that exists in the texts (Choi, 2014; Huffaker 2010; Gamson, 1988a; Van Gorp, 2007). As a result, the language (e.g., emotional, cognitive or religious or moral language) reflects the degree to which the thoughtful argument, fundamental emotion, or religious or moral language is presence in the discourse.

Choi (2014) has indicated that the feature of retweeting on Twitter is an indication of influence. Others believe that retweeting is the result of competition among messages which can increase the likelihood of a frame perpetuation (Meraz & Papacharissi, 2013). Therefore, the

competition of selecting a certain message among other messages for retweeting reflects the salience of that message. However, they did not examine whether linguistic attributes can increase retweeting (potential of influence) and the likelihood the perpetuation of frames.

The current study addresses three approaches to understand the relationship between linguistic attributes of tweets and retweeting (influence). First, the cognitive and emotional linguistic characteristics of tweets are examined. Second, the religious and moral linguistic characteristics are examined. Finally, the current study is interested to go further and looks at potential differences in the relationship between language attributes and retweeting behavior while considering the positive, neutral or negative tone of the tweets.

## **CHAPTER THREE: METHODOLOGY**

### **Sample**

Twitter has features that make it a useful platform for launching and shaping public discourse regarding a variety of issues (Burch, Frederick, & Pegoraro, 2015). This study employs a quantitative content analysis, with the ‘tweet’ as the unit of analysis, examining the presence and influence of the linguistic attributes of the tweets.

Capturing the tweet within the micro-blogging environment in which the sociopolitical discussion take place is crucial to our understanding of the public discourse. Unfortunately, the public does not have the capability to capture historic tweets. As an alternative, researchers use the timely capture approach, which allows them to capture the most recent tweets a topic and continue gathering data over time (Twitter, 2011e). For this project, the time frame of January 24 to February 24, 2016 was selected for capturing the relevant tweets. There are two reasons to justify using this time frame. First, the discussion of the issue is still ongoing. In the past several years, Saudi activists, primarily women, have launched several campaigns on Twitter. Despite the fact that it has been two years since the last campaign, the issue is still widely discussed on Twitter. Furthermore, some women activists still post videos of themselves driving, discuss the issue, and call for women’s right to drive. Second, this time frame is compatible with the current research because it is reflective of ongoing discussions regarding the women’s right to drive issue. Also, there was no specific event, such as a religious or cultural incident, that might affect the normal discussion of this issue. Discussion of the issue of women driving was not triggered by a specific episode. Hence, based upon the ongoing nature of the issue, this time frame is compatible to this study.

Researchers examining the political discussion on Twitter can determine the size of the sample based on the types of the analysis process. The first type is the research that involves manual coding. This type of research usually uses samples that are compatible with the time available for the project accomplished. For example, Choi (2014) used both manual and computer-assisted analysis to code and analyze 478 tweets in online political discussion in Korea. Hamdy and Gomaa (2012) coded 800 posts on social media during Egyptian revolution for their analysis. Burch, Frederick, and Pegoraro (2015) coded 1,226 tweets to examine the framing on Twitter during the Vancouver riots. Second, in the research processes that involve only computer-assisted analysis, the sample of tweets can consist of more than the research that involves coding. It might contain up to one million tweets or more. For example, Meraz and Papacharissi (2013) analyzed 959,893 tweets using a computer-assisted analysis software, SQL. During the Libyan revolution, Brown et al. (2011), captured 5,842 Arabic tweets in the eight days from 10-15-2011 to 10-22-2011; they then used the Linguistic Inquiry and Word Count (LIWC) software to analyze the tweets.

NVivo software was used to capture the tweets. NVivo enables researchers to capture tweets over time. While using NVivo for data collection, the Twitter Application Programming Interface (API) was used to specify the search. The API has sample features to narrow a search to specific content. In this study, the API was used to select the time frame (January 24 to February 24), the location (Saudi Arabia), and the phrase “woman driving” (قيادة المرأة). The phrase “woman driving” (قيادة المرأة) is commonly used in Saudi Arabia when discussing the issue of women’s right to drive.



Using the above process, 7000 tweets were collected. The data were exported from NVivo to an Excel file. To filter the data, all of the duplicated tweets and retweets were excluded using the “remove duplicates” feature on Excel. This study included the textual tweets only. It does not include the textual form in picture, videos or links. Further, all the columns that were not used in the analysis, such as the number of followers, total number of tweets, tweet IDs, usernames, and tweet time, were removed. This resulted in three columns of data: tweet posted, type of tweet, and number of retweets. Two additional columns were added for translation and coding.

After removing the duplicate tweets, 3,000 tweets remained. Using a simple random sample approach, the researcher extracted 1,500 tweets for analysis. Because this study involved manual translation and coding, coders excluded 306 tweets that were unclear, could not be interpreted, had text that was incomplete or was not related to the topic under discussion (women’s right to drive). (See the Appendix A.) Therefore, the total number of the tweets included in this study is 1,194.

## **Procedures**

**Translation.** For the current project, a hybrid approach to translating the tweets from Arabic to English was used. The researcher recruited two translators whose primary language is Arabic and hold degrees in English studies to translate the tweets from Arabic to English. First, the translators used Google Translate tool for automatic translation, tweet-by-tweet. Since Google Translate results in some errors in translation, the translators then revised any errors that occurred. For example, for the Arabic sentence (القيادة في السعودية صعبة لأن السائقين متهورين), Google Translate interpreted it as, “Leadership in Saudi Arabia is difficult because reckless drivers”. In

this case, the translator made the necessary revision to the word translation. The correct translation of this Arabic sentence would be, “Driving in Saudi Arabia is difficult because the drivers are reckless”.

**Training for translation and coding.** The two translators were first trained for two days by the researcher, for two hours each day. In the training process, they were given an overview of how the computer assisted analysis software works. Then, an instructional session was provided on how to translate a tweet, step by step. For example, they were given guidelines on how to exclude, correct, and revise tweets while translating and coding (See the Appendix A). After the training, each translator was given 750 tweets. They were asked to translate and code based on the training sessions they were given. While translating and coding, some tweets were excluded. For example, tweets that are not related to the topic, tweets that do not have a textual comment, such as the tweets that have only the hashtag (e.g., #Women\_Driving), or tweets that have slang language and are completely impossible for the translator to understand (See Appendix A).

**Computer-assisted analysis.** The current study applied two approaches for analysis. First, the manual approach which included the process of translation and coding the tweets. The second approach was the Computer- assisted approach, using the Linguistic Inquiry and Word Count software. The software program Linguistic Inquiry and Word Count (LIWC) is an analytical program that contains pre-set dictionaries. The software can be used to analyze tweets for linguistic qualities objectively and systematically. LIWC has over 82 categories of linguistic processes, containing more than 4,500 words. According to Pennebaker et al. (2007), the software detects the words in the various specific categories and provides word count

information as well as the percentage of words in a category compared to the total words in the unit (tweet).

LIWC software has been successfully used in communication research. Turner and Kinnally (2010) used LIWC software to examine the religious, affect and cognition expressions in public participation contributions to the National Public Radio (NPR) program, *Talk of the Nation*. In the Twitter context, Stieglitz & Dang-Xuan (2012) examined the relationship between sentimental words and their diffusion (retweet) using LIWC.

LIWC can be used for two psychometric and psychological properties. The first example of these properties is *content words*. These are the words that convey the content of a piece of communication including nouns, regular verbs, adverbs, and adjectives. The second property is the *style words* or “function words. This includes such categories as articles, pronouns, prepositions, auxiliary words, and conjunctions. The sentence, “Women's right to drive has been a discussion topic in Saudi society for long time,” contains the content words of *women, right, drive, discussion*, etc. and the style words of *to, has been, in*, etc.

The language people use is a reflection of how events are formed. LIWC can be used to identify cognitive language. For example, people use tentative language (e.g., *maybe, perhaps, guess*) when they are uncertain about the topic under discussion. A study has found using certainty words such as *always, clearly, and sure* increase the likelihood of replies, created discussion, and spread content (Huffaker, 2010). Researchers also have accurately used LIWC to identify emotional language. For instance, people use positive language like *sweet, nice, and love* when they are writing about a positive event; and they use negative language (e.g., *worried, hate, sad*) when they are writing about a negative event (Kahn et al., 2007). Moreover, LIWC has been

found to be a valid and reliable tool (Kahn et al., 2007; Pennebaker et al., 2007; Pennebaker and Francis, 1996). However, one weakness of the LIWC software is the inability to identify words and phrases that contain context, irony, sarcasm, and idioms (Tausczik & Pennebaker, 2010).

LIWC has been used in different languages and cultural contexts. It has been translated and is available in Korean, Spanish, German, Dutch, Norwegian, Italian and Portuguese. Choi (2014) used the Korean version of the LIWC to analyze the percentage of a tweet's text that included cognitive and emotional language. Pennebaker and Chung (2009) used the LIWC English version to analyze 58 transcripts of speeches of Al-Qaida leaders, Osama Bin Laden and Ayman al-Zawahiri. In a preliminary project, Brown et al. (2011) studied discourse and the social dynamics of the Libyan revolution. Their study focused on positive and negative emotions, including the categories of anger, religion and death. However, while studying different cultures, it is important to consider adding culturally relevant words to enrich some categories, especially religion and family categories. Bjekić et al. (2014) adopted a Serbian dictionary that was consistent with the Serbian culture. For example, she added words to the religious categories that represent Orthodox Christians, as well as some additional swear words to the swear words in the Informal Speech category. She also incorporated some words regarding family relationships, to the family category. Lee et al. (2007) developed the Korean version of the LIWC (KLIWC) software, incorporating Korean cultural words.

An Arabic LIWC dictionary is not fully available yet. The Arabic dictionary has only the functional word categories, which are the categories that are concerned with a grammatical perspective (e.g., articles, nouns, verbs, pronouns, etc.) (Pennebaker et al., 2007). Brown et al. (2011) studied discourse and the social dynamics of the Libyan revolution. Their study focused

on the dimensions of positive and negative emotions. They translated 5,842 words from Arabic to English, using Google Translate, to analyze tweets with the LIWC. In order to test the validity of their approach, they conducted a qualitative study of the errors. A sample of 300 tweets was divided in half. The first 150 tweets represented positive emotion tweets while the other 150 tweets represented negative emotion tweets. An Arabic speaker evaluated the two groups qualitatively and found that the positive tweets were largely consistent, but the negative tweets were not. They found 26 positive tweets included among the 150 negative tweets group. They suggested that the researchers either translate the English LIWC to Arabic and create an equivalent Arabic dictionary, or use a human translator instead of the automatic translator tool. However, the LIWC developer, J. W. Pennebaker (personal communication, April 27, 2016) strongly recommended translating the Arabic tweets to English using Google Translate and then processing them with the English LIWC.

### **Independent Variables**

**Cognitive language.** Using the English version of LIWC-2007, words falling under the cognition category were counted for analyzing. The cognitive category includes 730 words that represents the overall cognitive process ( $M = 17.58$ ,  $SD = 8.64$ ). Under the cognitive language process, there are the components that represent six cognitive dimensions: causation, insight, discrepancies, tentativeness, certainty, and inhibition. Under these components, a set of words represents each component. Insight component ( $M = 2.11$ ,  $SD = 3.24$ ) contains 108 words, such as think, know, consider, etc. Causation component ( $M = 1.94$ ,  $SD = 3.11$ ) contains 108 words, such as hence, because, effect, etc. Discrepancies component ( $M = 1.53$ ,  $SD = 2.77$ ) contains 76 words, such as should, would, could, etc. Tentative component ( $M = 1.72$ ,  $SD = 2.83$ ) contains

155 words, such as *maybe*, *perhaps*, *guess*, etc. Certainty ( $M = 1.01$ ,  $SD = 2.33$ ) contains 83 words, such as *always*, *never*, etc. Inhibition component ( $M = 1.87$ ,  $SD = 3.20$ ) contains 111 words, such as *block*, *constrain*, *stop*, etc.

**Emotional language.** Another set of words relating to emotion category was used. The emotion category includes 915 words. These words were added to measure the overall emotional process ( $M = 4.95$ ,  $SD = 4.76$ ). There are two components that represent the emotion dimension. First, the positive emotion component ( $M = 2.24$ ,  $SD = 3.27$ ) contains 406 words, such as *love*, *nice*, *sweet*, etc. Second, negative emotion ( $M = 2.68$ ,  $SD = 3.72$ ) contains 499 words, such as *hurt*, *ugly*, *nasty*, etc. Under the negative emotion there are three components. Anxiety ( $M = .33$ ,  $SD = 1.28$ ) contains 91 words, such as *worried*, *fearful*, *nervous*, etc. Anger ( $M = .72$ ,  $SD = 2.83$ ) contains 184 words, such as *hate*, *kill*, *annoyed*. Sadness ( $M = .47$ ,  $SD = 1.46$ ) contains 101 words, such as *crying*, *grief*, *sad*.

**Religious or moral language.** Similar to cognition and emotion, the LIWC2007 dataset for religion and morality was used. Under the religion category process, the dataset contains 159 words such as *altar*, *church*, *mosque*, etc. Researchers have suggested adding words to certain categories while studying different cultures (Bjekić et al., 2014; Lee et al., 2007). Furthermore, Almahmoud (2015) concluded that religious language and moral language were used in tweets regarding the women's right to drive issue. Hence, this research adapted the religion and morality dictionary to include some words that represent the Saudi culture and the issue under study. To do so, the researcher used two criteria to collect words representing culture and the issue. First, the researcher considered some terms that represent religious and moral language in Almahmoud's (2015) study, such as *harm prevention*, *society corruption*, *sedition*, *conspiracy*,

and *evil*. Second, the translators were given 100 tweets and were asked to extract the words and terms that represent religious and moral words and were related to the women's right to drive issue. Translators were able to provide 18 terms (e.g., *extremism* (التشدد), *halal* (حلال), and *disorder* (فتنه). Furthermore, that list of terms was expanded to include roots or related words, such as synonyms, plurals, singulars, noun, object, and past tense of the words (See Appendix B for the complete list of religious or moral language). This culminated the 55 words. Finally, the original LIWC dictionary for Religion and Morality was extended to include the additional culturally relevant words to create an Arabic-oriented religious and moral measure ( $M = 2.22$ ,  $SD = 4.08$ ). Table 2 includes a list of the LIWC categories and words as well as means and standard deviations of the variables.

**Tweet tone.** This variable measures the tweet tone regarding in the issue of women's right to drive. That is, if the tweet explicitly or implicitly indicated that women should be allowed to drive, then the tweet was considered in favor of the right to drive. Conversely, if the tweet explicitly or implicitly indicated that women should not be allowed to drive, then the tweet was considered as against the right to drive. If the tweet was neither for nor against the issue of women's right to drive, or the coder was not sure about the tone of the tweet, then the tweet was coded as neutral.

Table 2

*Descriptions of the Linguistic Categories used in the LIWC Analysis.*

LIWC Category	Examples	Number of words
<i>Cognitive process</i>		<b>730</b>
Insight	<b>think, know, consider</b>	<b>195</b>
Causation	<b>because, effect, hence</b>	<b>108</b>
Discrepancies	<b>should, would, could</b>	<b>76</b>
Tentative	<b>maybe, perhaps, guess</b>	<b>155</b>
Certainty	<b>always, never</b>	<b>83</b>
Inhibition	<b>block, constrain, stop</b>	<b>111</b>
<i>Emotion process</i>		<b>915</b>
Positive emotion	<b>love, nice, sweet</b>	<b>406</b>
Negative emotion*	<b>hurt, ugly, nasty</b>	<b>499</b>
Anxiety	<b>worried, fearful, nervous</b>	<b>91</b>
Anger	<b>hate, kill, annoyed</b>	<b>184</b>
Sadness	<b>crying, grief, sad</b>	<b>101</b>
<i>Religious or moral**</i>	<b>altar, church, mosque</b>	<b>(159 + 55) 214</b>

*Note:* \*Anxiety, anger, and sadness are components that categorized under negative emotion.

\*\*The original number of words in the LIWC category is 159 words. The additional words appropriate to Saudi Arabian culture were 55. This resulted in a total of 214 words in the category.

**Coding tweet tone.** The translators were asked to code the tweets based on the Arabic expressed tone related to the issue (tweet tone). They were asked to code the tweets in terms of being in favor of, opposed to, or neutral, with regard to the issue of women's right to drive. Before they start coding the data, an external sample of 100 tweets (seven percent of the total number of tweets) were given to the two coders for translating and coding. Inter-coder reliability was tested using the Cohen's Kappa statistic to determine perceptions of the tone on the issue. The inter-coder reliability for the coders was found to be Cohen's Kappa = .75 ( $p < .001$ ), 95% CI. After coding all the tweets, another external sample of 100 tweets were given for after coding reliability. The inter-coder reliability for the coders was found to be Cohen's Kappa = .78 ( $p <$



.001), 95% CI. Table 3 displays a sample of the tweet translation and coding. The table also includes the type and the frequency of retweet.

Table 3

*Examples of the Tweet Translation and Coding in the Current Study.*

Tweets	Translation	Coding	Type of Tweet	Retweet Frequency
بنات الخليج صعدن القمم والسعودية تقذف من على المنابر وتويتر لأنهم يطالبون بقيادة المرأة للسيارة	<b>Gulf girls reached peaks and Saudi Arabian girls have been kicked out of the platforms and Twitter because they are g to drive the car</b>	<b>favor</b>	<b>Retweet</b>	<b>4</b>
منع قيادة المرأة للسيارة في السعودية أمر غير منطقي	<b>Preventing women from driving cars in Saudi Arabia is unreasonable</b>	<b>favor</b>	<b>Tweet</b>	<b>0</b>
لا يريدون قيادة المرأة للسيارة وحسب يريدونها ان تقود نفسها للهلاك	<b>They do not want woman to drive a car but they want her to lead herself to destruction</b>	<b>opposed</b>	<b>Tweet</b>	<b>0</b>

### Dependent Variable

**Influence (retweet).** The measure of influence was adopted from the literature (e.g., Choi, 2014) model. The number of times others “forward” a user’s tweet is a measure of the tweet’s potential influence. That is, the more a tweet is retweeted by other users, the greater the tweet’s potential to influence members of a social network (e.g., Druckman & McDermott, 2008; Cha et al., 2010; and Choi, 2014). The range of retweets in the sample was from 0 to 674.

## CHAPTER FOUR: RESULTS

This chapter provides the results of the content analysis. As a first step, LIWC-2007 was used to detect the language being used for the independent variables of cognition, emotion, religion and morality. As a second step, three types of data were exported to SPSS: (a) cognition, emotion, religious morality words, (b) tweet tone (favor, opposed, neutral), and (c) the number of retweets. The third step was running the analyses.

### **Frequency and Comparison of the Tweets' Language**

**Cognitive components.** The first research question (RQ1) asked about the frequency of the cognitive language components (i.e., causation, insight, discrepancies, tentative, certainty, inhibition) expressed in tweets discussing a women's right to drive (refer to Table 4). A frequency count was performed to observe the use of the cognitive language. The results indicated that insight language was the most frequently expressed language among cognitive components. It appears in 467 tweets which accounts for 39.1% of the overall tweets. The second most expressed language component was causation, which was evident in 433 tweets which accounts for 36.3% of the overall tweets. Inhibition language was the third most frequent, which was evident in 409 tweets which accounts for 34.3% of the overall tweets. Tentative language was observed in 402 tweets which accounts for 33.7% of all tweets, discrepancy language with evident in 355 tweets which accounts for 29.7% of the whole. Certainty language was the least expressed component with a frequency of 245 tweets which accounts for 20.5% of the overall tweets.

**Emotional components.** The second research question (RQ2) asked about the frequencies with which the emotional components (e.g., positive and negative emotions) were

expressed in tweets about women's right to drive (refer to Table 4). The frequency of the appearance of emotional language components in the tweets was assessed. The results indicated that negative emotion words were expressed in the most tweets. Negative language was evident with a frequency of 529 which accounts for 44.3% of the overall tweets. The positive emotional language was evident with a frequency of 487 tweets which accounts for 40.8% of the overall tweets.

The first hypothesis (H1) proposed that anger would be expressed most frequently among the negative emotional components (e.g., anxiety, anger, and sadness) in tweets about women's right to drive (refer to Table 4). A review of the frequencies indicated that anger language was the most expressed language among negative emotional components, which was evident with a frequency of 180 tweets which accounts for 15.1% of the overall tweets, followed by sadness language with a frequency of 130 which accounts for 10.9% of the overall tweets, and finally anxiety language with a frequency of 89 which accounts for 7.5% of the overall tweets. A comparison of the frequencies using Cochran's Test indicated that the presence of the three linguistic components in tweets were significantly different (Cochran's  $Q = 36.87$ ,  $df = 2$ ,  $p < .001$ ). A Related-Samples McNemar Test was used to conduct a pairwise comparison between anger and sadness. The presence of anger language was significantly greater than sadness language (McNemar's Test Statistic = 9.03,  $df = 1$ ,  $p < .01$ ). Therefore, the hypothesis was supported (refer to Table 5).

**Overall cognitive versus emotional language.** The second hypothesis (H2) proposed that emotional language would be expressed more frequently than cognitive language in tweets about women's right to drive (refer to Table 4). The number of tweets containing emotion

language was compared to the number of tweets containing cognitive language. The result indicated that cognitive language was expressed more frequently (in more of the tweets) than emotional language. The cognitive language was evident in 1130 tweets which accounts for 94.6% of the overall tweets. The emotional language was evident in 793 tweets which accounts for 66.4% of the overall tweets. The result of a Related-Samples McNemar Test was showed that the frequency with which the two linguistic variables appear in Tweets is significantly different; cognition (McNemar's Test Statistic = 287.27,  $df = 1$ ,  $p < .001$ ). Therefore, the hypothesis was not supported (refer to Table 5).

**Religious or moral language.** The third research question (RQ3) asked about the frequency of religious and moral language (refer to Table 4). The result indicated that the religious and moral language was evident in of 399 tweets which accounts for 33.4% of the overall tweets.

**Tweet tone.** The fourth research question (RQ4) asked about the frequency with which negative, neutral, or positive attitudes toward the issue of women's right to drive were evident in the tweets. The result indicated that 721 of the tweets were in favor of the right to drive which accounts for 60.4% of the overall tweets, followed by neutral tweets, tweets that were neither for nor against the right to drive, with a frequency of 276 which accounts for 23.1% of the overall tweets. Tweets that opposed the right to drive were least common, being evident in 197 which accounts for 16.5% of the overall tweets.

Table 4

*Frequencies, Percentages, Means and Standard Deviations Associated with the Linguistic Categories.*

(N = 1194)

Research questions	Linguistic attributes	Frequency*	Percentage**	M***	SD
<b>RQ1</b>					
Frequency of the cognitive components	Insight	468	39.1%	2.11	3.24
	Causation	433	36.3%	1.94	3.11
	Inhibition	409	34.3%	1.87	3.20
	Tentative	402	33.7%	1.72	2.83
	Discrepancies	355	29.7%	1.53	2.77
	Certainty	245	20.5%	1.01	2.33
<b>RQ2</b>					
Frequency of the emotional components	Negative	529	44.3%	2.68	3.72
	Positive	487	40.8%	2.24	3.27
<b>H1</b>					
negative components	Anger	180	15.1%	.72	1.91
	Sadness	130	10.9%	.47	1.46
	Anxiety	89	7.5%	.33	1.28
<b>H2</b>					
Overall emotional and cognitive language	Cognition	1130	94.6%	17.58	8.64
	Emotion	793	66.4%	4.95	4.76
<b>RQ3</b>					
The frequency of the religious language	Religious or moral	399	33.4%	2.22	4.08
<b>RQ4</b>					
Tweet tone frequency	Favor	721	60.4%		
	Neutral	276	23.1%		
	Opposed	197	16.5%		

*Note:* \* Frequency refers to the number of tweets including at least one word in the linguistic category. \*\* Percentages refer to the portion of the total tweets that included at least one word from the linguistic category. \*\*\* The means refer to the percentage of words in a tweet that were related to the linguistic components.

Table 5

*Tests for Significant Differences in the Presence of Linguistic Attributes (H1 and H2).*  
( $N = 1194$ )

Linguistic attributes	Frequency	Test Statistic	df
Anger	180	36.87***	2
Sadness	130		
Anxiety	89		
Cognition	1130		
Emotion	793	287.27***	1

Note: \*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

### Relationship between the Language and Retweeting

Examination of the dependent variable, number of retweets ( $M = 12.39$ ,  $SD = 54.55$ ), revealed that it was not normally distributed. The distribution was actually indicative of over-dispersion. Therefore, negative binomial regression models were used for the analyses. Negative binomial regressions were run with emotion, cognitive, and religion and morality language variables as predictors and number of retweets as the outcome variable.

**Cognitive components and retweeting.** The fifth research (RQ5) question asked about the relationship between the cognitive components (i.e., causation, insight, discrepancies, tentative, certainty, inhibition) and retweeting (refer to Table 6). A negative binomial regression was run to test the relationship between the cognitive language and retweeting. A review of omnibus test indicated that the model was significant ( $\chi^2 = 94.21$ ,  $df = 6$ ,  $p < .001$ ). The results showed that causation ( $B = .04$ ,  $p = .001$ ) and certainty ( $B = .04$ ,  $p = .004$ ) were positively related to retweeting. Inhibition ( $B = -.04$ ,  $p < .001$ ) and discrepancies ( $B = -.03$ ,  $p < .05$ ) were negatively related to retweeting.

**Emotional components and retweeting.** The sixth research question (RQ6) asked about the relationship between the emotional components (e.g., positive and negative emotions) and

retweeting (refer to Table 6). A review of omnibus test indicated that the model was significant ( $\chi^2 = 24.74$ ,  $df = 2$ ,  $p < .001$ ). Examining the test of model effects with just the two predictor variables, the positive and negative emotion language measures. The results showed that negative emotional language was positively related to retweeting ( $B = .04$ ,  $p < .001$ ) and positive emotional language was negatively related to retweeting ( $B = -.02$ ,  $p < .05$ )

**Negative emotional components and retweeting.** The seventh research question (RQ7) asked about the relationship between negative emotional components (e.g., anxiety, anger, and sadness) and retweeting (refer to Table 6). A review of omnibus test indicated that the model was significant ( $\chi^2 = 107.32$ ,  $df = 4$ ,  $p < .001$ ). Examining the test of model effects with the three predictor variables, the anxiety, anger, and sadness measures. The results indicated that anger was the strongest predictor of retweeting ( $B = .14$ ,  $p < .001$ ). Sadness was also positively related to retweeting ( $B = .04$ ,  $p < .05$ ).

**Overall cognitive versus emotional language and retweeting.** The third hypothesis (H3) proposed that cognitive language would be more strongly related to retweeting than emotional language. A review of omnibus test of a negative binominal regression model including cognition language, emotion language and retweet number indicated that the model was significant ( $\chi^2 = 43.58$ ,  $df = 2$ ,  $p < .001$ ). Examining the test of model effects with just the two predictor variables (i.e., the overall cognitive and emotional language measures) indicated that cognitive language (Wald  $\chi^2 = 39.00$ ,  $df = 1$ ,  $p < .001$ ;  $B = .02$ ) was a stronger predictor of retweeting than emotional language (Wald  $\chi^2 = 4.54$ ,  $df = 1$ ,  $p < .05$ ;  $B = .01$ ). Therefore, the hypothesis was supported.

**Religious or moral language and retweeting.** The eighth research question (RQ8) asked about the relationship between religious and moral language and retweeting (refer to Table 6). A negative binomial regression was run to test the relationship between religious and moral language and retweeting. A review of omnibus test indicated that the model was not significant ( $\chi^2 = .43$ ,  $df = 1$ ,  $p = .51$ ). The results indicated that religious and moral language was not related to retweeting ( $B = -.00$ ,  $p = .51$ ).

Table 6

*The Independent Associations between the Use of Cognitive, Emotion, and Religious Language and the Amount of Retweeting.*  
(N = 1194)

Research questions	Linguistic variables	<i>B</i>	<i>Wald Chi-Square</i>	<i>df</i>	<i>p</i>	<i>ExpB</i>
<b>RQ5</b>						
Relationship between cognitive components and retweeting	Insight	.01	1.94	1	.16	1.02
	Causation	.04	10.77	1	.00	1.04
	Discrepancies	-.03	5.13	1	.02	.97
	Tentative	.01	.33	1	.56	1.00
	Certainty	.04	8.11	1	.00	1.04
	Inhibition	-.04	24.72	1	.00	.96
<b>RQ6</b>						
Relationship between emotional components and retweeting	Positive	-.02	3.98	1	.05	.96
	Negative	.04	19.03	1	.00	1.04
<b>RQ7</b>						
Relationship between negative emotional components and retweeting	Anxiety	-.04	2.83	1	.09	.96
	Anger	.14	77.17	1	.001	1.15
	Sadness	.04	4.23	1	.04	1.04
<b>RQ8</b>						
Relationship between religious or moral language and retweeting	Religious or moral	-.00	.43	1	.51	.99



**Linguistic components and retweeting.** The ninth research question (RQ9) asked about the relationship between each linguistic component and retweeting (refer to Table 7). A negative binomial regression was run to test the relationship between all the linguistic components (i.e., insight, causation, discrepancies, tentative, certainty, inhibition, positive emotion, anxiety, anger, sadness, and religious or moral) and retweeting. A review of omnibus test indicated that the model was significant ( $\chi^2 = 182.85$ ,  $df = 11$ ,  $p < .001$ ). The results showed that anger ( $B = .16$ ,  $p < .001$ ) was the strongest component that related positively to retweeting, followed by certainty ( $B = .06$ ,  $p < .001$ ) causation ( $B = .05$ ,  $p < .001$ ), and sadness ( $B = .05$ ,  $p < .05$ ).

Table 7  
*The Independent Associations between the Linguistic Characteristics and the Amount of Retweeting.*  
(N = 1194)

Research questions	Linguistic components	<i>B</i>	<i>Wald Chi-Square</i>	<i>df</i>	<i>p</i>	<i>ExpB</i>
<b>RQ9</b>						
Relationship between linguistic components and retweeting	Insight	.03	5.45	1	.02	1.03
	Causation	.05	21.51	1	.00	1.06
	Discrepancies	-.01	1.09	1	.30	.99
	Tentative	.03	5.87	1	.02	1.03
	Certainty	.06	16.87	1	.00	1.07
	Inhibition	-.04	14.36	1	.00	.97
	Positive emotion	-.03	10.29	1	.00	.97
	Anxiety	-.05	3.38	1	.07	.95
	Anger	.16	91.33	1	.00	1.17
	Sadness	.06	7.79	1	.00	1.06
	Religious or moral	-.00	.25	1	.62	1.00

### **Tweet tone, Linguistic Components, and Retweeting**

The tenth research question (RQ10) asked whether there are any differences in the relationship between the linguistic components and retweeting based on the tweet tone (e.g.,

negative, neutral, or positive attitudes toward the issue of women's right to drive). To detect whether differences in the relationship among the linguistic components and retweeting were important based on the tone of the tweet, three regressions analysis, one for each tone, was run.

**Negative tone.** A negative binomial regression was run to test the if there are any differences in the relationship between the linguistic components (i.e., insight, causation, discrepancies, tentative, certainty, inhibition, positive emotion, anxiety, anger, sadness, and religious or moral) and retweeting using only the negative tone tweets, those which were against the issue of women's right to drive (refer to Table 8). A review of omnibus test indicated that the model was significant ( $\chi^2 = 193.68$ ,  $df = 11$ ,  $p < .001$ ). The results showed that among the tweets that had a negative tone regarding the issue, anxiety ( $B = .38$ ,  $p < .001$ ) was the strongest predictor of retweeting, followed by anger ( $B = .29$ ,  $p < .00$ ), and sadness ( $B = .13$ ,  $p < .00$ ). The result also showed that the use of religious and moral language was a negative predictor of retweeting ( $B = -.06$ ,  $p < .005$ )

**Neutral tone.** A negative binomial regression was run to test the if there are any differences in the relationship between the linguistic components (e.g., insight, causation, discrepancies, tentative, certainty, inhibition, positive emotion, anxiety, anger, sadness, and religious or moral) and retweeting based on the neutral tone tweets, neither against nor support a woman's right to drive (see Table 8). A review of omnibus test indicated that the model was significant ( $\chi^2 = 163.62$ ,  $df = 11$ ,  $p < .001$ ). The results showed that among the tweets with a neutral tone, certainty ( $B = .15$ ,  $p < .001$ ) was the only predictor component that related positively to retweeting. The result also showed that the use of religious and moral language was a negative predictor of retweeting ( $B = -.10$ ,  $p < .00$ )

**Positive tone.** A negative binomial regression was run to test the if there are any differences in the relationship between the linguistic components (e.g., insight, causation, discrepancies, tentative, certainty, inhibition, positive emotion, anxiety, anger, sadness, and religious or moral) and retweeting using only the positive tone tweets, supporting a woman's right to drive (see Table 8). A review of omnibus test indicated that the model was significant ( $\chi^2 = 136.93$ ,  $df = 11$ ,  $p < .001$ ). The results showed that among the tweets with a positive tone, anger ( $B = .13$ ,  $p < .001$ ) was the strongest attribute that related to retweeting, followed by sadness ( $B = .10$ ,  $p < .001$ ), causation ( $B = .09$ ,  $p < .001$ ), insight ( $B = .05$ ,  $p = .001$ ), and tentative ( $B = .05$ ,  $p = .001$ ). The result also showed that the use of religious or moral language was a small but positive predictor of retweeting ( $B = .03$ ,  $p = .01$ ).

Table 8  
*The Independent Associations between the Linguistic Characteristics and the Amount of Retweeting Based on the Tweet Tone: Negative, Neutral, Positive.*  
(N=1194)

Component	Negative Tone			Neutral Tone			Positive Tone		
	B	Wald Chi- Square	p	B	Wald Chi- Square	p	B	Wald Chi- Square	p
Insight	.04	1.06	.30	-.12	17.66	.00	.05	11.15	.00
Causation	.02	.39	.53	-.02	.75	.39	.09	27.56	.00
Discrepancies	-.11	13.04	.00	-.03	1.23	.27	.03	2.81	.09
Tentative	.06	2.10	.15	-.05	3.58	.06	.05	11.76	.00
Certainty	.03	.41	.52	.15	17.62	.00	.01	.33	.57
Inhibition	-.07	5.97	.02	-.07	8.20	.00	-.01	.39	.53
Positive emotion	-.08	9.37	.00	.03	1.16	.28	-.05	14.53	.00
Anxiety	.38	13.89	.00	-.17	16.97	.00	-.04	.88	.35
Anger	.29	52.50	.00	-.03	.53	.47	.14	40.54	.00
Sadness	.14	8.09	.00	-.22	17.93	.00	.11	15.15	.00
Religious or moral	-.06	7.82	.00	-.10	21.94	.00	.03	6.01	.01

## **CHAPTER FIVE: DISCUSSION**

Social media facilitates communication, the spread of information, awareness, and the exchange of ideas. In nondemocratic societies, where traditional media does not represent people's voices, social media has been a fertile ground for people to express their opinions more freely. Therefore, Saudi Arabian activists have taken advantage of social media to spread awareness and express their demands regarding the issue of women's right to drive.

Despite the fact that demands for women's right to drive in Saudi Arabia have arisen repeatedly since the 1990s, this issue has recently gained attention in Twitter discussions among both the Saudi and international communities. Activists have launched several political campaigns on Twitter to spread awareness about women's right to drive. As part of the social media campaign and with the support of their families, women sat behind the wheels of cars, drove in the streets, recorded videos, and posted them on social media outlets in defiance of the ban on women driving. Issues like these, which communication scholars have not examined in detail, show how social media can be a platform for sociopolitical discourse, particularly in societies with limited freedom of expression. The characteristics of the language people use when discussing social and political movements are important for understanding how public discourse can be shaped. In fact, the linguistic attributes of social media texts and their role in shaping public discourse has not been clearly examined. Furthermore, how people respond to the linguistic characteristics of social media messages, particularly Twitter, has not been studied thoroughly. Framing is one theory that can be applied to help understand the relationship between message attributes and their effects or influence. Framing theory is concerned with how people select the appropriate language to construct messages that gives more salience to an event

or issue (Carragee & Roefs, 2004; D'Angelo, 2002; Entman, 1993; Pan & Kosicki, 1993; Reese, 2007). Framing theory proposes that people use language to frame their messages based on cultural values and other internal schemata (Shoemaker & Reese, 1996). The cultural values and internal schemata can be observed through the nuances of linguistic characteristics, such as cognitive and emotional language. These linguistic attributes are components of messages that contribute to the overall sociopolitical discourse. This study was conducted in order to examine the presence of the linguistic characteristics of Twitter communication among Saudis regarding the issue of women's right to drive as well as to observe the linguistic factors associated with potential influence of the message (e.g., retweeting).

This chapter will discuss the implications of the findings associated with the research questions and hypotheses presented in this study by focusing on three key points. First, it will examine the expression of the linguistic attributes of the tweets used to discuss the issue of women's right to drive, particularly the frequency of cognitive, emotional, and religious or moral language in the tweets. Second, the discussion will further consider the associations between the linguistic characteristics (e.g., cognitive, emotional, and religious or moral language and their components) and their potential influence. Finally, the discussion will address the effect of each tweet's tone (e.g., in favor of a woman's right to drive, opposed to the right to drive, neutral with regard to the right to drive) and linguistic characteristics (e.g., cognitive, emotional, and religious or moral language and their components) on its potential influence. All of these observations will build upon one another to work toward the overall purpose of the project, which is to understand the presence and influence of the language in the Twitter discourse within the context of a sociopolitical movement.

## Frequency of the Language in the Twitter Discourse

With regard to the frequency of language use, there were three crucial findings regarding how Twitter discourse regarding the issue of women's right to drive was linguistically shaped. First, it was observed that insight, causation, and inhibition were the most frequently expressed components of cognitive language. Second, cognitive language was expressed more often than emotional language. Third, it was observed that the expression of anger was the most common negative emotion.

Previous studies have not focused on cognitive language in political online discussion (Choi, 2014). In fact, the majority of previous studies neglected the importance of examining the amount of cognitive language and its component expressions in online discussions as an independent variable. For example, Choi (2014) studied the relationship between cognition and retweeting without looking at the frequency of the cognitive expression and how that related to the overall public discussion. Some studies compared cognitive language to emotional language (Choi, 2014; Marcus et al., 2011) without looking at the contributions of each type of language.

The results of this study suggest the sociopolitical discourse regarding women's right to drive issue is linguistically framed in cognitive language, more specifically insight, causation, and inhibition. Furthermore, in comparing overall cognitive and emotional language, it can be observed that cognitive language is most evident in the Twitter discussion on this issue. That is, people tended to use the language of logic, causation, assessment, problem-solving, and thinking while discussing this issue. During this sociopolitical discussion, people were likely to use words such as *rational*, *think*, *accept*, *reason*, *because*, *prohibit*, and *influence*. For example, consider the following text from a tweet:

*The minister should not say that women are the cause of their unemployment. One of the most important causes of female unemployment is the issue of transportation. Did women prevent themselves from driving their own cars?*

The above tweet reflects the use of three components within the category of cognitive language. The word *issue* is categorized under cognitive language, the word *causes* is categorized under causation language, and the word *prevent* represents inhibition language. Addressing the components of cognitive language is useful because it provides detailed information about the number of differences regarding the cognitive language components. For example, when there are clear differences between the components of certainty and tentativeness, this will give a clear indication about the persuasive tone of the linguistic discourse.

The current study concludes that cognitive language was expressed more frequently than emotional language. This finding contradicts Choi (2014), who observed that emotional language was expressed more than cognitive language in online political discussions. The current result might differ from Choi's observation because of the nature of the context. Unlike Choi's study, this study examined the language associated with sociopolitical discourse within a movement, as opposed to Choi's research, which looked at the political discussion in general. However, the results of the current study are in line with Habermas's (1990) perspective of cognition and public communication, which suggested that politics should be discussed based on rational argumentation that provides reasons and justifications. This suggests that the nuances observed in the language can potentially reflect a broad frame of the issue, causation, and justification. Furthermore, the causation, insight, and inhibition observed can also be reflective of a more specific frame called *attribution of responsibility* by Semetko and Valkenburg (2000), who

described it as a “frame [which] presents an issue or problem in such a way as to attribute responsibility for its cause or solution to either the government or to an individual or group” (p. 96). Additionally, this is consistent with Entman’s (1993) definition of the frames:

Frames, then, *define problems*—determine what a causal agent is doing with what costs and benefits, usually measured in terms of common cultural values; *diagnose causes*—identify the forces creating the problem; *make moral judgments*—evaluate causal agents and their effects; and *suggest remedies*—offer and justify treatments for the problems and predict their likely effects. A single sentence may perform more than one of these four framing functions, although many sentences in a text may perform none of them. And a frame in any particular text may not necessarily include all four functions. (p. 52)

For example, the tweet “*The most dangerous AlSahwa (The Awakening mainstream) invention of all; women driving cars is forbidden but women riding alone with a former prisoner is Halal (allowed). This statement means that logic and reason are violated*” reflects the Entman model of the cultural frame. The language of insight and causation that is mostly expressed in this issue can be a potential cultural frame, which predicts cultural values or political ideologies that cause the problem, evaluate and diagnose the effects, and make a conclusion.

Looking at the components of negative emotional language separately, the current study suggests that those who tweeted about women’s right to drive in Saudi Arabia during the time frame of the study were more likely to express anger than other negative emotions like sadness or anxiety. This is consistent with the findings of Hamdi and Goma (2012), who observed that Egyptians mostly expressed their anger on social media during the Egyptian revolution in 2011. Furthermore, it agrees with Al-Saggaf (2011), who observed that Saudis clearly expressed anger



on social media during the floods that hit Jeddah in 2009. Finally, the expression of anger is common among several cultures and issues. For example, in political discussions on Korean social media, Choi (2014) concluded that anger is the most expressed form of negative emotional language. This suggests that the expression of anger during political discussions or movements, particularly on social media, reflects human nature and is not dependent on culture or issues/topic.

Additionally, the results indicate that religious and moral language is less likely than cognitive and emotional language to be involved in this discussion. This differs from the observations of Almahmoud (2015). She suggested that religious and moral content were involved in the discussion regarding the issue of women's right to drive. However, there might be other explanations for the religious and moral language results. First, the issue of women's right to drive does not involve religious or moral figures and this is what Saudi government officials propose. For example, the Saudi Arabian Foreign Minister, Adel Al-Jubeir, recently said that the issue concerning women's right to drive is societal, not religious, and that lifting the ban will take time (Agence France Presse, 2016). However, officials in Saudi Arabia do not usually get involved in Twitter discussions or promote a certain position in social media. The second explanation is that Almahmoud's study looked at the clerics tweets specifically, which increased the likelihood of the religious language presence in her study. The Third explanation is that the methodical approach used in the current study is not sufficient to detect this religious and moral language. That is, the expanded dictionary that was added to LIWC needs more cultural words and terms that reflect the involvement of the religious and moral words. Another point of conversation is that religious language may be more closely associated with tweet tone or

perspective on the issue. As a result, an examination of all the tweets does not detect the nuances in the language (this point will be addressed further later in the discussion.).

Finally, the results suggest there are substantially more tweets (almost four times as many) in favor of the right of women to drive than against the right. Despite the religious mainstream's influence in social media (Allothman, 2013) and its general opposition to women driving, the large number of statements supporting women's right to drive might reflect the climate of acceptance toward this issue in Saudi society.

### **Relationship between Language and Influence**

Meraz and Papacharissi (2013) described the Twitter environment as a place where messages compete with each other for attention. Within this competitive environment, the process of retweeting can elevate some messages so that they are more visible by more people than other messages. This can provide an explanation for how retweeting can be considered a gauge for understanding the potential influence messages can have. Hence, this dynamic and competition of the retweeting explains the salience of the messages. Cha et al. (2010) studied the number of people who follow a user, the number of retweets, and the number of mentions as influential features. They found that retweeting is the most influential factor in the flow of the information, particularly with valuable content.

The measure of influence used in this project was adopted from Choi's (2014) model. Choi argued that the number of retweets indicates potential influence. That is, when a certain tweet gets a high number of retweets, this means that the tweet has the potential to influence a discussion. This study concludes that tweets with cognitive language are more likely to be retweeted and therefore have a greater potential to influence the discussion of a sociopolitical

movement than those containing emotional language. This supports the findings of Choi (2014), who also observed the same relationship in his analysis of political discussions on Twitter. Moreover, it was observed in the current study that causation language is more likely to be influential than other cognitive components. Observing causation language and its influence has not been conducted in previous studies.

However, among cognitive components, certainty language is also associated with potential influence. This is consistent with Huffaker (2010), who found that certainty was associated with spread and replay of the content. Huffaker (2010) concluded that words of certainty, such as *always*, *clearly*, and *sure*, increase the contribution to the diffusion of content in online Google Group discussions. This is also consistent with Choi (2014), who concluded that certainty is a predictor of retweeting.

That said, of all the language components, including cognition, emotion, and religious or moral language, anger was the strongest predictor of retweeting/potential influence. Despite the fact that causation, insight, and inhibition are the most expressed components, more tweets with angry language were retweeted, and it is much more related to potential influence than the other components. For example, when a tweet contains words such as *anger*, *kill*, *mad*, *punch*, or *hate*, it will be more likely to be influential (retweeted). For every unit change in anger within a tweet, the likelihood of retweeting increases by 16%. Furthermore, despite the fact that causation and certainty are positively related to the number of retweets (potential influence of the content), anger is a far stronger predictor of potential influence than any other component. Choi (2014) also found that anger is related to the potential influence more than the other negative emotional language types, such as anxiety and sadness.

We can infer that this finding suggests that basic language components play key roles in increasing the salience of the message. Then, the salience of these messages can increase the likelihood of message sharing and make the message more visible to members of the social network than other messages. The results of this study show that when the message has angry language, the salience of the message increases. As a result, the likelihood of retweeting is more competitive than other types of language.

Finally, the tight relationship between anger language and potential influence might suggest that in social or political movements people are influenced by content in which they personalize, emotionalize, or dramatize an issue to capture the interest of others. This interaction could be reflective of a more specific frame called the *human interest frame* (Semetko & Valkenburg, 2000). That is, when the language of the tweet includes words such as *blame*, *crap*, *murder*, *kill*, etc., it may be more personal or dramatic and ultimately make the message more salient.

### **Tweet Tone, Language, and Influence**

The first parts of this study looked at the presence of linguistic characteristics as well as the potential influence of these characteristics in Twitter discourse. Those examinations were done without consideration of the attitude toward the issue of women's right to drive. There may be some differences in the linguistic attributes that were formed based on the tweet tones that led to the shape of the retweeting competition. The last part of the analysis considers the potential for differences in the linguistic attributes in the messages based on the tweet tone (supporting, neutral, opposing the issue) and their potential influence.

The results indicate that the messages that express opposition to women's right to drive and contain negative emotion language (anxiety, anger, sadness) are related to potential influence (retweeting). An example of a tweet containing anger, anxiety, or sadness in its language is: *Some liberals have neglected the identity of this country and spread hate in society by asking for women to drive. This is a shame.*

These results suggest that opposition messages that have negative emotions are having more success in the competition for attention and more salience than well-reasoned arguments. One explanation of this is that in the sociopolitical movement environment, messages that have a negative attitude toward an issue come from people who do not want the current situation to change, so those messages are more likely reflect or share unsatisfied feelings, such as anxiety, anger, or sadness. This contrasts with more argumentative and logical language, such as causation or insight. This finding may be reflective of a specific frame, the *human interest* frame (Semetko and Valkenburg, 2000), in which negative-tone tweets are more likely to share dramatized, emotional, or personal messages on the issue.

From a cultural perspective, emotional language, particularly negative emotional language, has been noted in Middle Eastern societies (e.g., Hamdy and Gomaa, 2012; Brown et al., 2011). In the Saudi society, where the freedom of expression is restricted in real life and traditional media, aggressive and angry comments have become common on Twitter when the topic under discussion involves sociopolitical change. The current study provides further understanding of the language expression and likelihood of sharing the content. It suggests that the overall discourse and the nature of information flow among the opposition tweets of the issue of women's right to drive is associated with language that express the resentment and unsatisfied

demands for women's right to drive. This is consistent with Almahmoud (2015), who concluded that those who oppose women's right to drive are not satisfied, because when women drive, the nature of the Saudi culture will be changed and this change will harm the values of the Islamic society. Therefore, the discourse of the opposition content is leaning to the negative emotion because of the cultural change.

On the other hand, there is a relationship between tweets that supported the issue of women's right to drive and the language of anger, sadness, causation, insight, or religious, moral, and potential influence (retweeting); that is, among the messages that had a positive perspective on the issue, negative emotional language, such as anger and sadness, cognitive language, such as causation and insight, and religious or moral language, were all positive predictors of retweeting. This finding suggests that messages that are in favor of the issue reflect the multiple dimensions of the issue; that is, there isn't one perspective of the message content that is being made salient in this forum.

This reflects that the sociological discourse among the tweets that support women's right to drive contain all the linguistic dimensions (e.g., cognition, emotion, religious or moral). For example, the discourse can include tweets that express the anger, sadness, and anxiety of not allowing women to take their rights and drive their cars and how they suffer from going to their work or businesses and move freely, or tweets that express the argumentative dimension of why they should drive. It is notable that religious and moral language is a positive predictor of retweeting among messages that are in favor of the issue; that is, the messages that are in favor of the issue and contain religious and moral language are likely to be retweeted. Despite the fact that the strength of the relationship between the religious or moral language and the positive tone

of the tweets and retweeting behavior was small, it is essential to mention that this relationship was not existed in the other tones toward the issue, which made it important factor to be addresses here. This small relationship might suggest that supportive messages of the issue of women's right to drive are more likely to be shared if they state reasons and arguments that include religious and moral language. For example, people might be likely to retweet messages that contain evidence or argumentative language that says that women's right to drive is not forbidden by religion. Another example is that people might be more likely to retweet messages that contain angry language toward the religious mainstream arguments on the issue. However, this research did not go further to examine the relationship among religious messages, cognition, and emotion, so that is an option for future research.

Finally, tweets that have a neutral tone, i.e., that neither support nor oppose the issue, are more likely to be retweeted if they include the language of certainty, as compared to other linguistic components. This suggests that tweets that do not have a clear opinion toward the issue of women's right to drive build their discourse and share the messages based on the accuracy, balance and certainty. For example, the tweet: *If you look at the facts, the commitment of women to the traffic system is more than men are.* The words' *fact* and *commitment* represent certainty language in the tweet, and at the same time, it does not show a clear tone about the issue.

## **Limitations**

Although the results of this study provide evidence for some relationships between variables, there are a few limitations that should be considered. First, LIWC does not provide the Arabic version of cognition and emotion categories, which led me to use Arabic to English translation with the English version of LIWC. Hence, some linguistic details could have been

lost when the tweets were translated from Arabic to English. Moreover, the religious and moral dictionary could be further expanded according to cultural contexts, so LIWC can sufficiently detect more words that relate to culture. Furthermore, one of the LIWC weakness is the inability of detecting linguistic nuances words and phrases that contain context, irony, sarcasm, and idioms (Tausczik & Pennebaker, 2010). Therefore, this kind of approach to language would have to be detected using human coders. Additionally, because the issue has been ongoing for years, determining only a one-month timeframe in which the sample was captured might not represent an accurate discussion on the issue. Additionally, because the issue has been ongoing for years, determining only a one-month timeframe in which the sample was captured might not represent an accurate discussion on the issue

It was not clear whether the linguistic attributes are the only influential variable in how much a tweet is retweeted, particularly in a sociopolitical context. Therefore, one of the limitations of this study is that there might be another influential variable that increases the likelihood of sharing messages, such as account age, number of followers, and sharing other forms of messages, such as picture or links.

### **Recommendations for Future Research**

Future research may expand the current study in a multitude of directions. This research focuses on the language and its presence and influence in the Twitter discourse during a sociopolitical issue. Because social or political issues are frequently viewed from a variety of perspectives, it would be worthwhile to examine how each ideological group constructs its messages through social media, particularly in countries where political parties and their supporters can be identified on social media. For example, Al-Saggaf, Himma, and Kharabsheh



(2008) found that Islamic fundamentalists and liberals were the major players in the political discussions in online forum communities in Saudi Arabia. It could therefore prove valuable to look at how those different ideological groups influence others by examining the language and behavior of retweeting based on their ideological or political affiliations.

Despite the fact that it has been previously found that retweeting is associated with the content more than other features (e.g., the number of people who follow a user, the number of retweets, and the number of mentions), such as by Cha et al. (2010), previous research did not clearly examine the relationship between retweeting as a predictor of influence, such as language features (e.g., linguistic attributions) versus account features (e.g., number of retweets, followers, and mentions) versus the content form (e.g., links, pictures, videos). Therefore, considering all of these variables will be helpful in understanding the strongest variables that are associated with retweeting (influence). Further, examining those variables within different contexts, such as political movements, public relations and persuasive campaigns, or religious discussions, will be helpful for better understanding the social media environment, particularly Twitter.

## **Conclusion**

In conclusion, this research recognizes the Saudi activists' desire to express their opinions and demands about their rights. How communicators frame sociopolitical discourse in the social media context and in societies with limited freedom of expression has not been thoroughly examined by communication scholars. This research helps us to understand the nature of social media interaction within the Saudi Arabian cultural context, particularly how Twitter is used as a platform for sociopolitical discourse. It also provides an explanation of how language can work effectively in shaping the sociopolitical discourse through Twitter. It helps us

better understand why certain factors that make some messages more competitive in the Twitter environment than others. It has clearly found that there is a relationship between the linguistic characteristics (particularly cognitive language and anger), the potential influence, and overall sociopolitical discourse. In fact, determining which characteristics of language work the most effectively in social media communication enriches our understanding of the social media environment. Therefore, this research is valuable not only for communication scholars to consider for further investigation, but also for scholars from other fields, such as marketing, advertising, and public relations.

## APPENDIX A: CODEBOOK

### *Translation*

Use Google Translate tool to translate the tweets. Copy the text of the Arabic tweet and then paste the tweet in the Google Translate box. Look to see if all the Arabic words correspond to the English translation. If not, you have to translate the words manually. There are several cases in which you will need to use manual translation:

- 1- The Arabic word is a slang word and Google Translate does not correctly translate the word.

Example:

بعض الحريم ييون يسوقون بدون رخصه

In the example, the slang word “ييون” is translated via Google Translate as Beaune. However, when you change it to the classical Arabic, the word will be read as “يردن” or want.

- 2- The Arabic word is spelled incorrectly and Google Translate does not correctly translate the word. In this case, correct the spelling and see whether the translation of the Google Translate is correct.

Example:

بعض الحريم ييون يسوقون بدون رخصه

In the example, the misspelled word “يسوقون” is translated via Google Translate as Marching, but when you correct the word’s spelling to “يسوقون”, Google Translate will interpret it correctly to be read as “drive.”

- 3- The Arabic word was translated incorrectly. in this case, you need to retranslate the word manually to make it fit with the tweet context or meaning.

Example: some women want to leadership without driver license.

In the example, Google Translate interprets the word “قيادة” as leadership, but we can understand from the context that the meaning here is driving.

There are some words related to culture or religion that Google may not translate them correctly. (See the list bellow to consider those words while using manual translation). Furthermore, while translating, your goal is to focus on word-by-word translation. Hence:

- 1- You don't need to pay specific attention to the grammatical errors or overall meaning of the tweet. The translation should focus only on word-by-word translation.
- 2- You don't need to include commas, periods, quotation marks, exclamation points, etc.
- 3- You don't need to translate or include in the translation the same written expressions (e.g., hahaha or LOL), Twitter feature symbols (e.g., #, @, RT) or links (<https://t.co/Le0zSJX>).

***Exclusion:***

You can exclude some tweets based on the following criteria:

- Tweets that are not related to the topic.
- Tweets that do not have a textual comment, such as the tweets that have only the hashtag (e.g., #Women\_Driving).
- Tweets that have slang language and are completely impossible for the translator to understand.

***Tweet Position coding***

For the coding process, code the tweet to account for whether it is (1) in favor of, (2) opposed to, or (3) neutral with regard to the issue. That is, each tweet will be evaluated based on the explicit and implicit meaning of the tweet. Each tweet will be identified as:

- (1) In favor of: the tweet supports women's right to drive.
- (2) Opposed to: the tweet is against women's right to drive.
- (3) Neutral: the tweet is neither for nor against women's right to drive (or the meaning is not clear to the coder).

While coding, your goal is to focus on the meaning of the tweet. Hence:

- Evaluate the tweet based on the Arabic meaning, not the translated one.
- Identify whether the words in the tweets are an indication of support or opposition before coding.

Examples:

بنات "الخليج" صعدن القمم ، والسعودية تُقذف من على المنابر وتوتير لأنها تطالب بـ #قيادة\_المرأة\_للسيارة  
بعض القوانين في السعودية تمنع المرأة من الحلال حتى لا يقع الرجل في الحرام

The previous two tweets support the issue. In the first tweet, you can notice words that indicate that the tweet supports the issue “السعودية تُغذف من على المنابر وتوتير لأنها تطالب” “#قيادہ\_المرأہ\_للسيارہ”. In the second tweet, you can notice the support of the issue is implicit.

منع المرأة قيادة السيارة

امنعوا قيادة المرأة

سؤال يطرح نفسه

أيهم أهم الأمن أو المال أو الاشياء الفرعية مثل مواضيع موجوده حاليا ومطروحه في الساحة الإعلامية مثل #الهيئه أو #قيادہ\_المرأہ ؟

These are three examples of opposed tweets. In the first and second, you can see that the tweets have clearly stated that the women should not drive the cars in Saudi Arabia. The third tweet the support of the issue is implicit.

سؤالي كيف طرحك واعتراضك على #الهيئه أو #قيادہ\_المرأہ أو اثاره الطائفية رح يفيد ويزيد الأمن كيف قلمك رح يفيد في زيادة وحدة الصف ويلمنا ع بعض

The previous tweet does not provide any clear position regarding the issue, so this can be identified as a neutral tweet.

### **Exclusion:**

You can exclude some tweets if the text of the tweet is not fully completed due to a capture error. If the tweet is uncompleted, then you can exclude the tweet.

## APPENDIX B: LIST OF RELIGIOUS OR MORAL WORDS

<i>abaya</i>	<i>Clerics</i>	<i>gentile*</i>	<i>monast*</i>	<i>pew</i>	<i>ritual*</i>	<i>sunnis</i>
<i>afterlife*</i>	<i>confess*</i>	<i>god'*</i>	<i>monk*</i>	<i>pews</i>	<i>rosaries</i>	<i>Takhtali</i>
<i>agnost*</i>	<i>conspiracy</i>	<i>Khalwah</i>	<i>moral</i>	<i>piety</i>	<i>rosary</i>	<i>Takhtla</i>
<i>alla</i>	<i>convent</i>	<i>kippur</i>	<i>morality</i>	<i>pilgrim*</i>	<i>roshashan</i>	<i>temple*</i>
					*	
<i>allah*</i>	<i>convents</i>	<i>Koran</i>	<i>morals</i>	<i>pious</i>	<i>sabbath*</i>	<i>testament*</i>
<i>altar*</i>	<i>Corrupt</i>	<i>koran</i>	<i>mormon*</i>	<i>pope*</i>	<i>sacred</i>	<i>theolog*</i>
<i>amen</i>	<i>corruption</i>	<i>kosher</i>	<i>mosque*</i>	<i>prais*</i>	<i>sacrific*</i>	<i>torah</i>
<i>amish</i>	<i>crucifi*</i>	<i>krishna*</i>	<i>Mufty</i>	<i>pray*</i>	<i>saint*</i>	<i>vatican*</i>
<i>angel</i>	<i>crusade*</i>	<i>krisna*</i>	<i>Muhajaba</i>	<i>preach*</i>	<i>salvation</i>	<i>veil*</i>
			<i>h</i>			
<i>angelic*</i>	<i>demon*</i>	<i>Liberal</i>	<i>muhamm*</i>	<i>presbyterian*</i>	<i>satan*</i>	<i>Wahhabi</i>
<i>angels</i>	<i>devil*</i>	<i>liberals</i>	<i>Muharam</i>	<i>priest*</i>	<i>scriptur*</i>	<i>Wahhabis</i>
						<i>m</i>
<i>baptis*</i>	<i>disorder</i>	<i>lord*</i>	<i>Muhla</i>	<i>prohibit</i>	<i>sect</i>	<i>Wali</i>
<i>baptiz*</i>	<i>divin*</i>	<i>lutheran*</i>	<i>mujahid*</i>	<i>prohibited</i>	<i>sectarian</i>	<i>westerniza</i>
						<i>tion</i>
<i>belief*</i>	<i>doom*</i>	<i>Maftonah</i>	<i>Munaqaba</i>	<i>prophe*</i>	<i>sects</i>	<i>westernize</i>
<i>bible*</i>	<i>episcopal*</i>	<i>Maharam</i>	<i>musl*</i>	<i>protestant*</i>	<i>Sedition</i>	<i>Wording</i>
<i>biblic*</i>	<i>evangel*</i>	<i>mecca</i>	<i>Neqab</i>	<i>psalm*</i>	<i>seminar*</i>	<i>worship*</i>
<i>bishop*</i>	<i>Evil</i>	<i>meditat*</i>	<i>nun</i>	<i>purgator*</i>	<i>shi'*</i>	<i>Yfton</i>
<i>bless*</i>	<i>Extremism</i>	<i>mercif*</i>	<i>nuns</i>	<i>puritan*</i>	<i>shiite*</i>	<i>yiddish</i>
<i>buddh*</i>	<i>extremists</i>	<i>mercy</i>	<i>orthodox*</i>	<i>quran*</i>	<i>shrine*</i>	<i>Youfty</i>
<i>catholic*</i>	<i>faith*</i>	<i>methodis*</i>	<i>pagan*</i>	<i>qur'an*</i>	<i>sikh*</i>	<i>zen</i>
<i>chapel*</i>	<i>Fassid</i>	<i>Mfatin</i>	<i>paradise</i>	<i>rabbi</i>	<i>sin</i>	
<i>chaplain*</i>	<i>Fatinah</i>	<i>minister*</i>	<i>passover</i>	<i>rabbinical</i>	<i>sinn*</i>	
<i>christ</i>	<i>Fatwa</i>	<i>ministr*</i>	<i>pastor*</i>	<i>rabbis</i>	<i>sins</i>	
<i>christian*</i>	<i>Fitnah</i>	<i>missionar</i>	<i>penance</i>	<i>ramadan</i>	<i>soul</i>	
		*				
<i>christmas*</i>	<i>forbid</i>	<i>mitzvah*</i>	<i>pentecost*</i>	<i>religio*</i>	<i>souls</i>	
<i>church*</i>	<i>Forbidden</i>	<i>Mixing</i>	<i>Permissibl</i>	<i>rite</i>	<i>spirit*</i>	
			<i>e</i>			
<i>clergy</i>	<i>fundamentali</i>	<i>mohamm*</i>	<i>Permitted</i>	<i>rites</i>	<i>sunni</i>	
	<i>s*</i>					

## APPENDIX C: EXAMPLES OF THE TRANSLATED TWEETS

تسكن خارج المدينة وبعد ان سافر السائق لم تذهب لمراجعة المستشفى رغم مرضها  
She lives outside the city and after her driver traveled, she could not go to the hospital despite her sever illness.

الوزير لا يجب أن يقول أن النساء هم سبب أنفسهم في الحصول على وظائف. واحدة من أكثر الأشياء أهمية سببت عدم  
توظيف النساء هي قضية المواصلات. هل منع النساء أنفسهم من قيادة سياراتهم؟  
The minister should not say that women are the cause of their unemployment. One of the most important causes of female unemployment is the issue of transportation. Did women prevent themselves from driving their own cars?

إذاً على الحقائق، الالتزام بنظام المرور يكون من النساء أكثر من الرجال.  
If you look at the facts, the commitment of women to the traffic system is more than men are.  
نزلت امس تغريدات عن معاناتي مع منع قيادة المرأة وانهالت علي الحلول السحرية

I wrote yesterday tweets about my suffering with the prevention of women's driving a car and I received so many solutions

ولو حارب المشايخ الفساد والظلم كما حاربوا قيادة المرأة لما وصلتم لما وصلتم اليه  
If the clerics fought corruption and injustice as they fought women's driving, you would not have reached this miserable situation

أن يقول وزير بأن #المرأة\_سبب\_بطالتها ، فهو أمر كافي لأن يُقال. من أسباب تسرب الموظفين مسألة التنقل. هل  
المرأة منعت نفسها من قيادة سيارتها؟

The minister should not say that women are the cause of their unemployment. One of the most important causes of female unemployment is the issue of transportation. Did women prevent themselves from driving their own cars?

انا ضد قيادة المرأة عشان بكره كل وحده كاشخه بسيارتها وتهايط وانا سيارتي ددسن منسمه كفراتها، حظي واعرفه  
I am against women driving tomorrow because later on everybody (every woman) will show off with her car while I cannot because I have an old broken Datsun. I know my luck.

قيادة المرأة موضوع تافه من السهل أن نثبتته ، الهيئة بمنطقية وموضوعية نريد أن نناقش في وجودها بيننا  
Women's driving is a trivial subject that is easy to be proved. We want to discuss logically and objectively the presence of Hiaha in our society.

انا متى تاكدت من كلامي، لما أيدتي الي راح يتحرشون بالبنات ايام كسر حظر قيادة المرأة  
I became sure of my words when you supported those people who were harassing girls during the days of the breaking the ban on women driving

أن تمنع المرأة من قيادة السيارة، أن تظن أن الجميع ينظر لها اذا خرجت، أن تراها مجرد محل لقضاء الرغبة يعني  
أنك تراها عارا

When you prevent a woman from driving a car, when you think that everyone is looking at her if she gets out, when you believe that a woman is just a place where you can spend a desire, all this means that you consider a woman as a disgrace

ماذا ستقدم قيادة المرأة لك ولمجتمعك ؟ السماح بقيادتهن سيضاعف ارقام الحوادث المرورية والخسائر البشرية

What will the driving of women add for you and your community? Allowing women's driving will double the traffic incident and human casualty

قياده\_المرأه\_للسياره#

تيار مهوس جنسيا وغير طبيعي يمتلك المناير والتعليم وزرع القيم ومنع قيادة المرأة للسيارة رغبة المجتمع. سلملي على المجتمع

Driving cars by women. It is an abnormal obsessed stream in sexuality that owns platforms, education, and laying the values. Yet, it says that preventing women from driving is the desire of the community, well damn such community.

حشر قضية #قيادة\_المرأة للسيارة في كل مشكلة امر مضحك، لا تطرح الحل لمجرد انك تريد ان تثبت صحته كـ #حوادث\_المعلمات

وتزعيما للحقوق سفاهه وجهل

Inserting the issue of women driving cars in every problem is funny. Do not give the solution just because you want to prove your point. The assertion of women's rights is a representation of both foolishness and ignorance such as the incident of female teachers.

للأسف العنصرية والطائفية متغلغلة في مجتمعنا بشكل مخيف. ياليت مطاوعتنا يحاربون العنصرية كثر ما يحاربون !!قيادة

Unfortunately, racism and sectarianism are pervasive in our society. I wish our clerics can fight racism as they are fighting driving

هو علي العلواني و لجين وحتى أفكارهم القذرة يسؤن لها اللبراليه\_سبب\_التطرف\_الارهابي#

Ali Al Alyani, Lujane, and their dirty thoughts are abusive for women. Liberalism is the cause of terrorist extremism

بعيداً عن رائك بالسواقة. من قال لك قيادة المرأة للسيارة بتزيد الزحمة بالعكس بتقليل من زحمة الصباح والظهيرة

Away from what you think about driving, who told you that driving cars by women causes increased congestion. Conversely it reduces morning and noon's traffics.

كم هو مؤسف أن يكون موضوع #قيادة\_المرأة للسيارة ورقة سياسية خارجياً واجتماعية داخلياً، وحسب الحاجة لن\_تقودي# !

It is a shame that the topic of women driving cars is used as a political card abroad and a social one inside the Saudi society as needed. Women will not drive.

عدم قيادة المرأة لا يليق بالسعوديه

Preventing women from driving cars is not applicable to the Saudi women

يمنعونها من #قيادة\_المرأة للسيارة لتستقدم سائقا بأضعاف ضمانها ثم يصرخون في وجوهنا: أين أنتم عن حقوق الأراامل

They prevent women from driving cars in order to bring a driver at double the price. Then they scream in our faces: where are the rights of widows?

لإختراع الصحوي الأخطر على الإطلاق قيادة المرأة للسيارة حرام لكن ركوبها مع خريج سجون أسوي حلال هنا يتنحر العقل والمنطق



The most dangerous AlSahwa (The Awakening mainstream) invention of all; women driving cars is forbidden but women riding alone with a former prisoner is Halal (allowed). This statement means that logic and reason are violated.

حتى نكون منصفين للجميع من يدعي الليبرالية ماهي عناصر النقاش معهم ؟ تحرير المرأة .قيادة المرأة ومشايخ الاسلام يخالفونهم فقط

To be fair to all: who claims to be a liberal? What are the elements of the debate with them (liberal people)? Women's liberation, women's driving. Yet, sheikhs (clerics) of Islam just do not share them the same ideas.

قيادة المرأة\_السيارة النظر في عدد المؤيدين والمعارضين وبناء قرار ظلم للأقلية قيادة المرأة ليس ترف بل ضرورة ملحة ومعاناة

Women's driving car. Considering the number of supporters and opponents and building an oppressive decision to the minority, women's driving is not a luxury but an urgent necessity due to a continuous suffering

المنطق السعودي تستطيع المرأة أن تتركب سيارة مع أجنبي في أي وقت ولا تستطيع قيادة سيارة قيادة السيارة مطلب لقد طفشنا متى #اسوق\_بنفسي ؟

According to the Saudi logic: women can ride a car with a foreigner at any time, but she cannot drive her own car. Driving a car is a demand, we are tired. When can I drive myself?

بعض الليبرالية تجاهلوا هوية هذه الدولة وقاموا بنشر الكراهية في المجتمع من خلال مطالبهم بقيادة المرأة للسيارة. هذا عار. Some liberals have neglected the identity of this country and spread hate in society by asking for women to drive. This is a shame.

انت تتكلم بما لا تعرف؟؟ قيادة المرأة يرفضها المجتمع السعودي وليس الحكومه

You do not know what you are talking about. Women's driving is rejected by the Saudi society not the government.

ا لتاق هذا سيكون غدا مطلب للبرالي الشهواني الذي همه فرجه كالبهائم فهذه مطالبهم اختلاط .قيادة المرأة. تأنيث المحلات .ابتعاث

This tag will be tomorrow's demand for abnormal sexual liberals whose main concern getting their animal desires. These are their usual demands: mixing men with women, women's driving, shop feminization, scholarship

قيادة المرأة موضوع تافهه عند المسؤولين

Women's driving is an unsavory subject among officials

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